Exploring Asian North American (ANA) English: A YouTube Corpus-based Approach

Lauretta S. P. Cheng & Mathew A. Kramer

LSA 2022
January 6, 2022

Motivation from Perception: “Sounding Asian”

Some listeners can correctly identify *some* local “Asian American” speakers at rates above chance

(Hanna, 1997; Newman & Wu, 2011; Wong & Babel, 2017; Cheng & Cho, 2021)

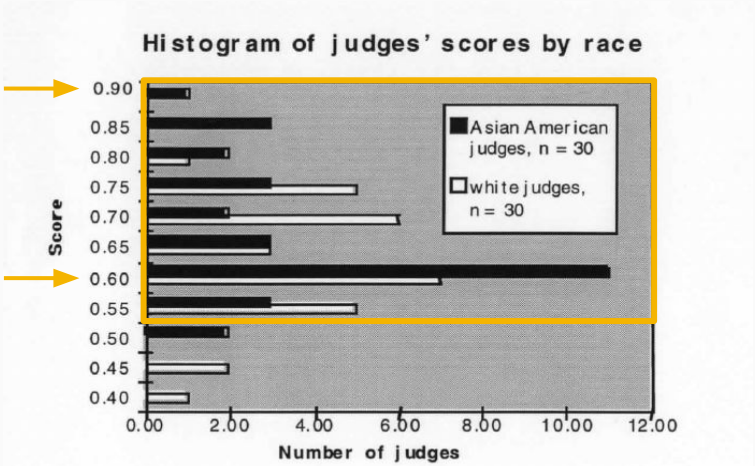


Figure 2. Histogram showing each judge group's score on the Asian American identification test by percentage. (For Asian American judges, n = 30, μ = 67%, σ = 11%. For white judges, n = 30, μ = 63%, σ = 10%.)

Hanna (1997)

Motivation from Production: ANA Ethnolinguistic Markers

Bauman (2016):

- Members of Asian American-interest sorority in New Jersey (mid-Atlantic region)
- **Some phonetic features interpreted to index local pan-ethnic Asian identity:**
  - Backed /oʊ/
  - Monophthongal /oʊ/
  - Lower vowel durational variability (“syllable-timed rhythm”)

Motivation from Production: ANA Ethnolinguistic Markers

- **No consistent differences found across ethnic/racial groups** (Newman & Wu, 2011)
  - E.g., Chinese and Korean American women did not differ from other ethnic groups in vocalic durational variability

- **Variation across specific ANA ethnic groups** (Cheng et al., 2016)
  - E.g., In California, Korean Americans retracted /oʊ/ while Chinese Americans fronted /oʊ/

Research Objective

- Exploratory study to extend previous studies of ANA ethnolinguistic variation
- Clustering analysis on several ANA-associated phonetic features from a sample Asian American-identified YouTubers

Methods: Speakers/Videos

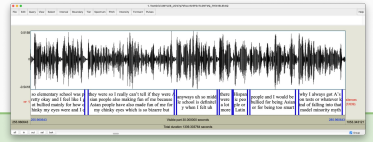
17 speakers (14 ANA, 3 non-ANA)

- Identified mainly via Asian American topic videos (e.g., Growing up Asian American tag), or general Q&A/Get to Know Me tag videos
- All grew up in California, and present as women
- Where possible, speech samples came from videos on Asian American topics

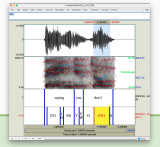
Code	Ethnicity	n
chi	Chinese American	4
kor	Korean American	5
eas	Other East Asian	2
viet	Vietnamese American	3
non	Non-Asian American	3

Methods: Data collection and processing

Screen & select speakers manually on YouTube



Download & process video audio/transcript using LingTube (Cheng & Kramer, 2021)



Automatic forced alignment via Montreal Forced Aligner (McAuliffe et al. 2017)

Hand-correction of vowel boundaries & coding for issues

Extract F1, F2 and F3 values via FastTrack (Barreda, 2021)

Select primary-stressed tokens of /oʊ/ from content words not following glides nor preceding word-internal sonorants, log-mean normalized (Barreda & Nearey, 2018)

Extract duration measurements

Select first ~200 phonetically voiced vowels

Methods: Phonetic Measures

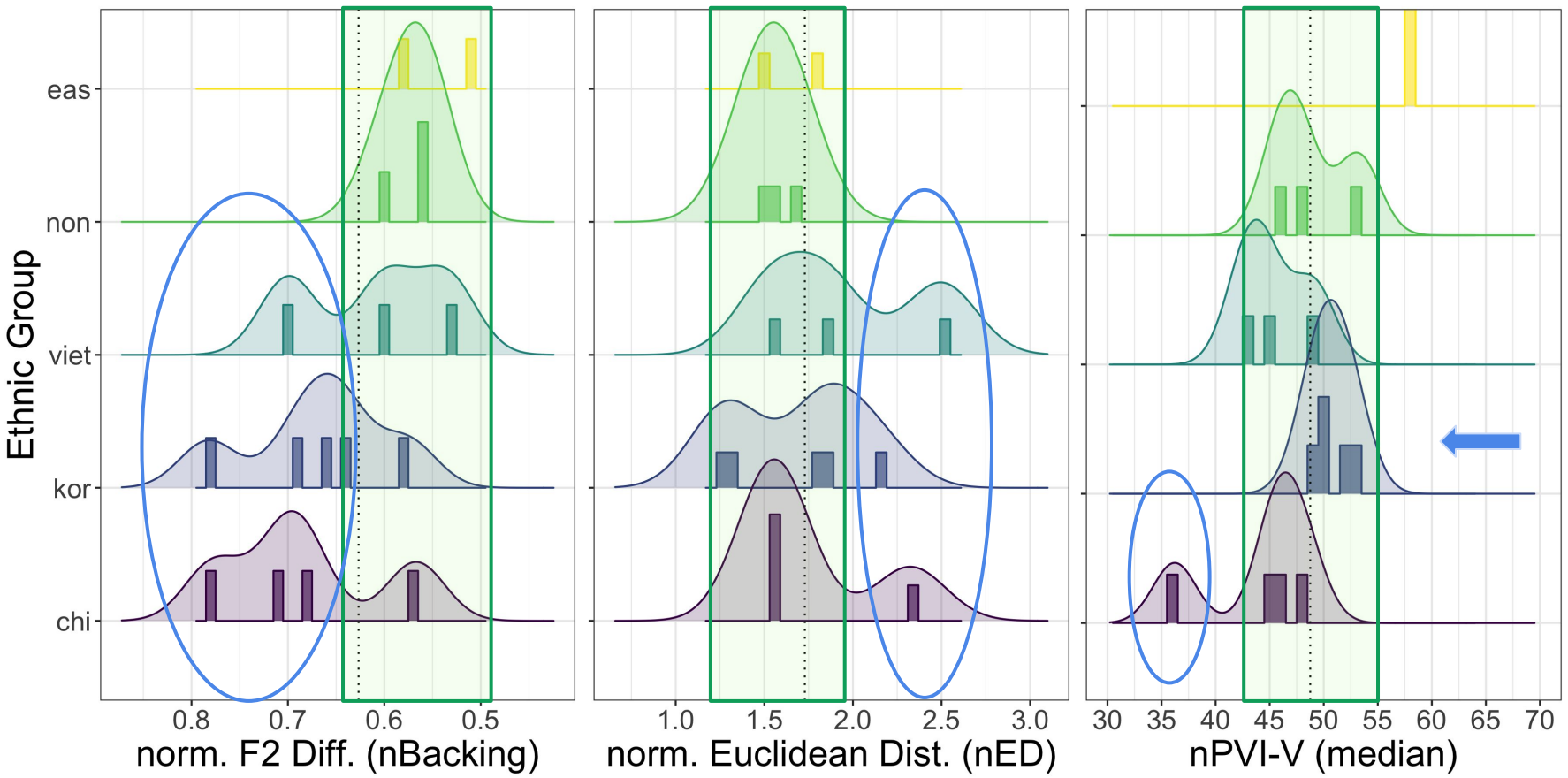
Feature	Measure
/oʊ/-backing	**Norm. F2 difference (nBacking)**: difference in /oʊ/ F2 from mean /i/ F2 (higher = more back)
/oʊ/-monoph-thongization	**Norm. Euclidean distance (nED)**: ED of F1+F2 values at ~25% and ~75%, divided by token duration (in seconds) (lower = more monophthongal)
Prosodic rhythm	**Norm. pairwise variability index (nPVI)**: Average (median) duration difference between pairs of consecutive vowels, divided by mean pair duration (lower = less dur. variability)

Methods: Predictions

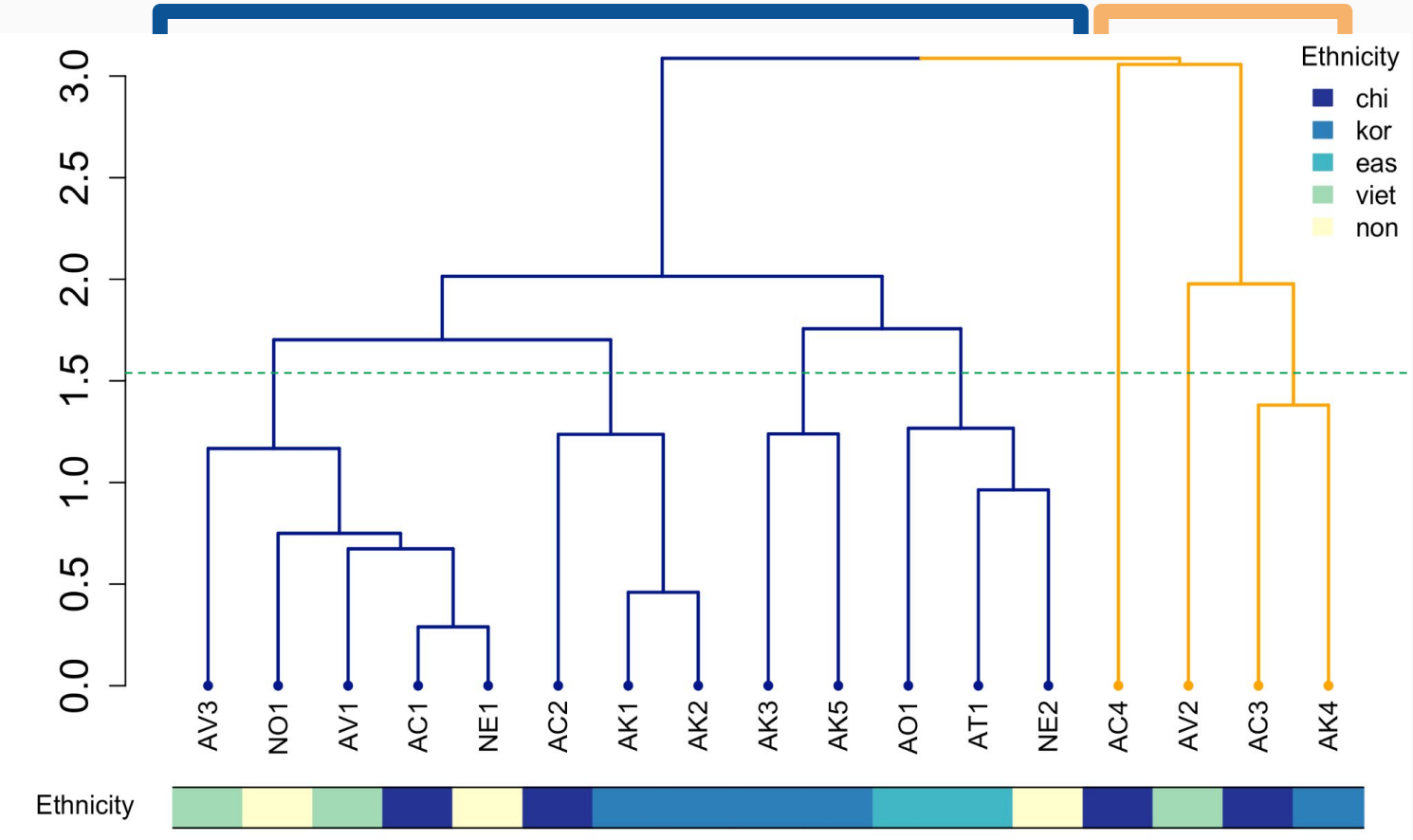
Feature	Prediction
/oʊ/-backing	**Fronted** (higher F2) ← White Americans, Chinese Americans — Asian Americans, Korean Americans → **Retracted** (lower F2)
/oʊ/-monoph-thongization	**Diphthongal** (more formant movement) ← White Americans — Asian Americans → **Monophthongal** (less formant movement)
Prosodic rhythm	**'Stress-timed'** (more variable vowel durations) ← White Americans, Korean Americans — Chinese Americans, Asian Americans → **'Syllable-timed'** (less variable vowel durations)

Bauman (2016); Hall-Lew (2009); Cheng et al. (2016); Jeon (2017); A. Cheng (2020); D'Onofrio & Van Hofswegen (2020); Newman & Wu (2011); Zipp & Staicov (2016)

Results: Score Distributions by Ethnicity

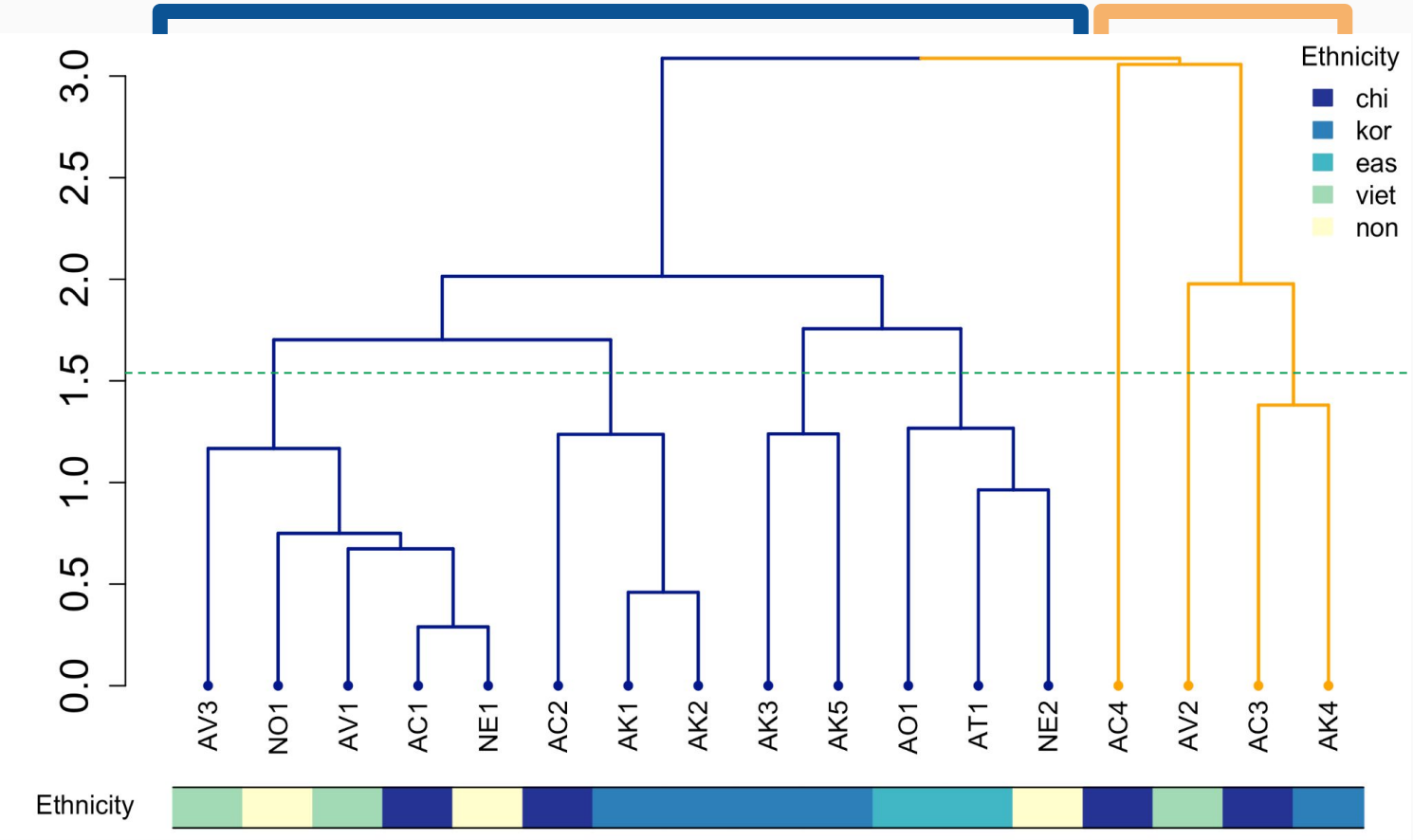


Results: Hierarchical Clustering Analysis (n=17)



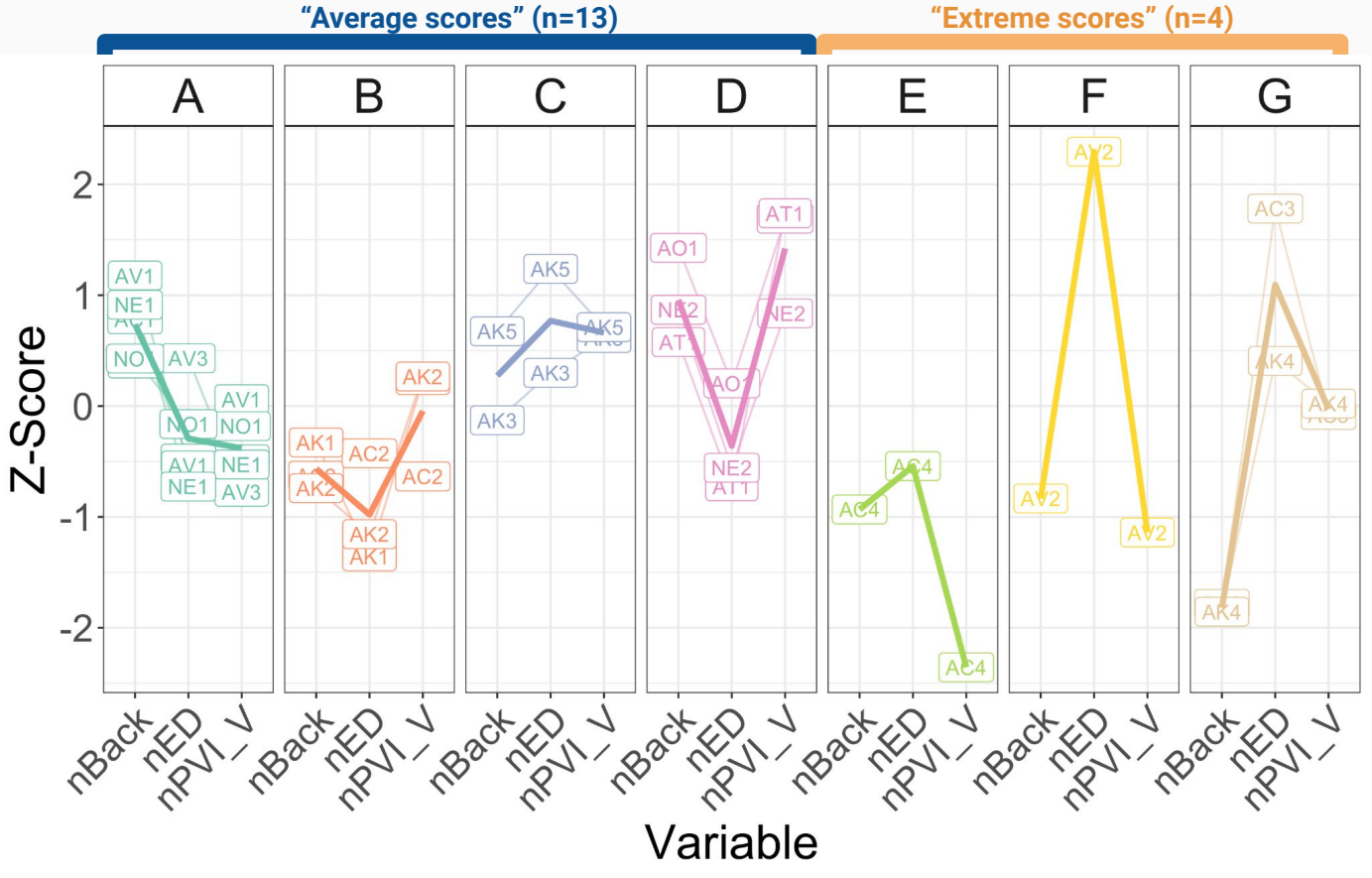
- Three scores per speaker submitted to hierarchical agglomerative clustering (average-linkage method on Euclidean distances)

Results: Hierarchical Clustering Analysis (n=17)



- Clusters are not clearly well-aligned with ethnicity
- But, some patterns could prove to be consistent given a larger dataset

Results: Hierarchical Clustering Analysis (n=17)



- All speakers with extreme scores are ANAs, and have relatively back /oʊ/
- All 3 non-ANA speakers (in A & D) have average scores, and have relatively fronted /oʊ/

Limitations & Future Steps

- Noisy data due to: recording environment, equipment, audio compression, etc.
- Small, diverse sample → difficult to generalize from
- Examine more speakers and features
- Gather perceptual judgment/ethnic identification data
  - Do any of the identified cluster patterns link to “sounding Asian”?

References

Barreda, S. (2021). Fast Track: Fast (nearly) automatic formant-tracking using Praat. Linguistics Vanguard, 7(1). https://doi.org/10.1515/lingvan-2020-0051

Barreda, S., & Nearey, T. M. (2018). A regression approach to vowel normalization for missing and unbalanced data. The Journal of the Acoustical Society of America, 144(1), 500–520. https://doi.org/10.1121/1.5047742

Cheng, A. (2020). 'School' Versus 'Home': California-based Korean Americans' Context-dependent Production of /u/ and /oU/. University of Pennsylvania Working Papers in Linguistics, 26(1).

Cheng, A., & Cho, S. (2021). The Effect of Ethnicity on Identification of Korean American Speech. Languages, 6(4), 186. https://doi.org/10.3390/languages6040186

Cheng, A., Faytak, M., & Cychosz, M. (2016). Language, race, and vowel space: Contemporary Californian English. In E. Clem, V. Dawson, A. Shen, & A. Horan (Eds.), Proceedings of the Forty-Second Annual Meeting of the Berkeley Linguistics Society (pp. 63–78).

Cheng, L. S. P. & Kramer, M. A. (2021, October) Introducing LingTube: An open-source toolkit for linguistic analysis of YouTube data. Poster presented at New Ways of Analyzing Variation (NWAV) 49 (virtual).

D'Onofrio, A., & van Hofwegen, J. (2020). Nisei Style: Vowel Dynamism in a Second-Generation Japanese American Community. The Publication of the American Dialect Society, 105(1), 79–94. https://doi.org/10.1215/00031283-8820631

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (Eighth edition). Cengage.

Hall-Lew, L. (2009). Ethnicity and phonetic variation in a San Francisco neighborhood [Ph.D. Dissertation, Stanford University].

Hanna, D. B. (1997). Do I Sound "Asian" to You?: Linguistic Markers of Asian American Identity. *UPenn Working Papers in Linguistics*, *4*(2), 15.

Newman, M., & Wu, A. (2011). "Do You Sound Asian When You Speak English?" Racial Identification and Voice in Chinese and Korean Americans' English. *American Speech*, *86*(2), 152–178.

McAuliffe, M., Socolof, M., Mihuc, S., Wagner, M., & Sonderegger, M. (2017). Montreal Forced Aligner: Trainable Text-Speech Alignment Using Kaldi. INTERSPEECH. https://doi.org/10.21437/interspeech.2017-1386

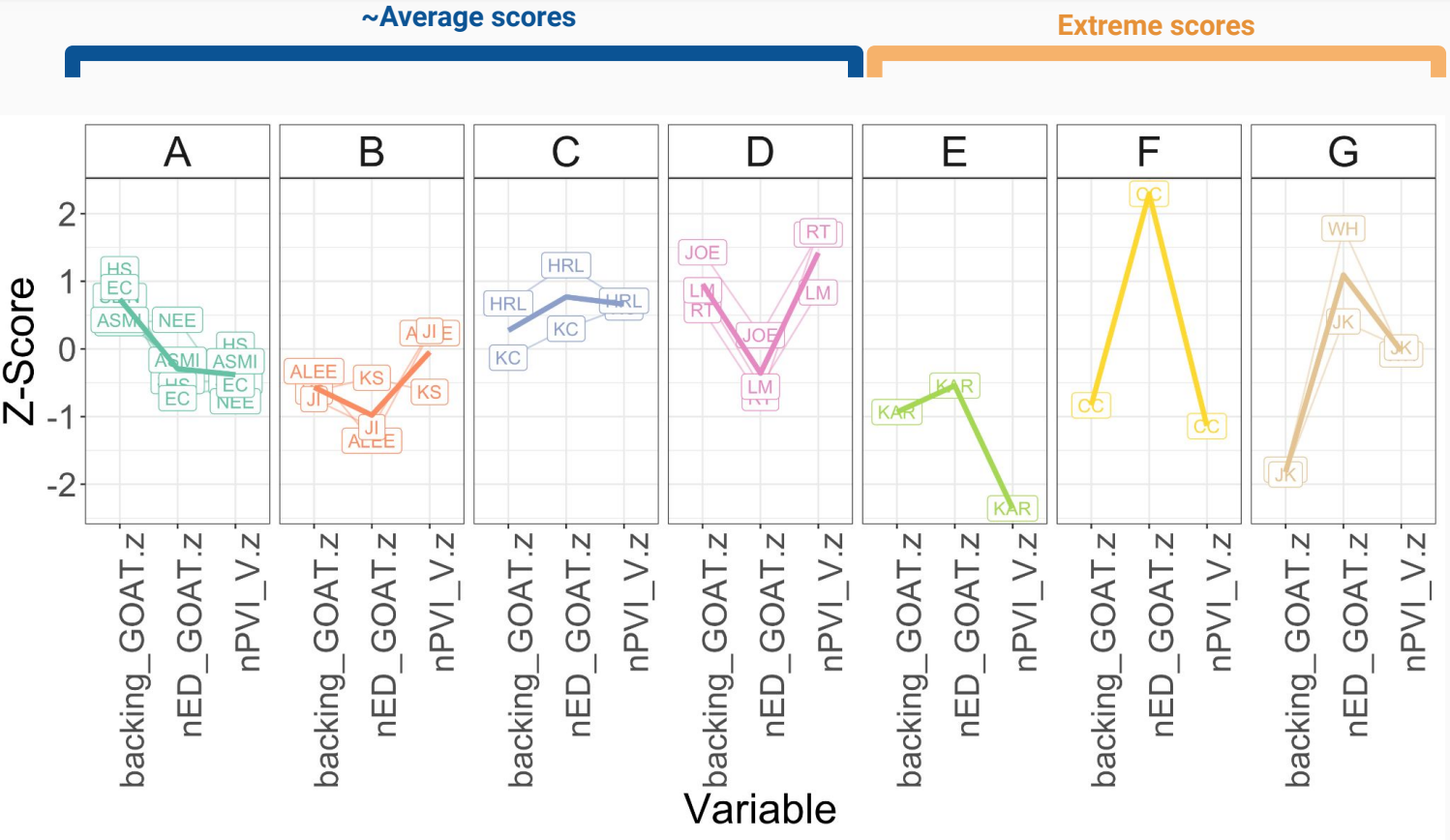
Wong, P., & Babel, M. (2017). Perceptual identification of talker ethnicity in Vancouver English. *Journal of Sociolinguistics*, *21*(5), 603–628.

Zipp, L., & Staicov, A. (2016). English in San Francisco Chinatown: Indexing identity with speech rhythm? World Englishes, 205–228.

Results: Hierarchical Clustering Analysis (n=17)

- Method: Hierarchical agglomerative clustering via the average-linkage method on Euclidean distances (Hair et al. 2019)
  - Each speaker starts as a cluster; grouped with most similar by avg. distances
  - Benefits:
    - Allows for **"classes" of different sizes and shapes**
    - Mitigates the effects of outliers (unlike Ward's)
- Results:
  - Optimal solution is **2, 5, 7 clusters**
  - Groups do not align with ethnicity
    - More detailed pattern corresponds to impressionistic judgments
    - Distinction between certain ANAs and rest of speakers
      - Consistent with expectations based on ethnicity

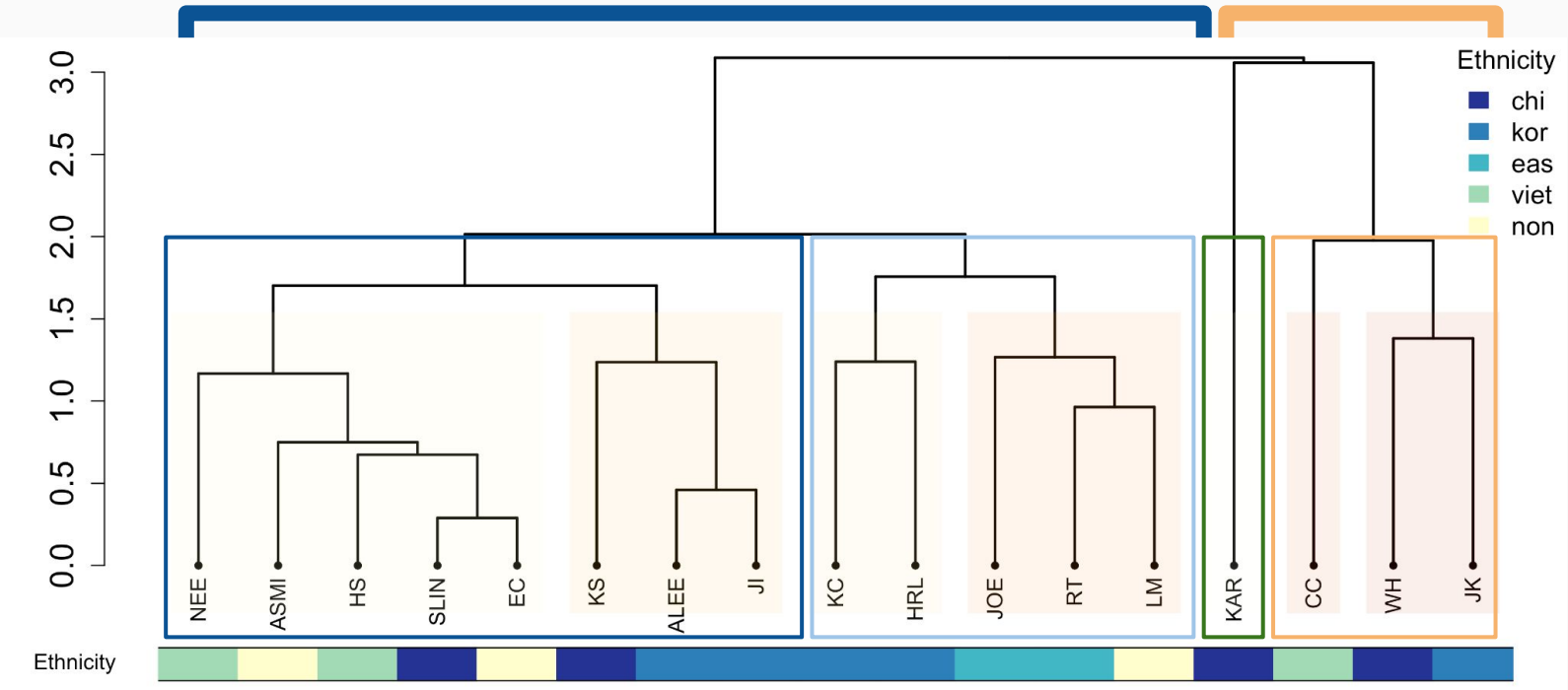
Results: Hierarchical Clustering Analysis (n=17)



All speakers with extreme scores are ANAs, and have relatively back /ou/

All 3 non-ANA speakers (in A & D) have average scores, and have relatively fronted /ou/

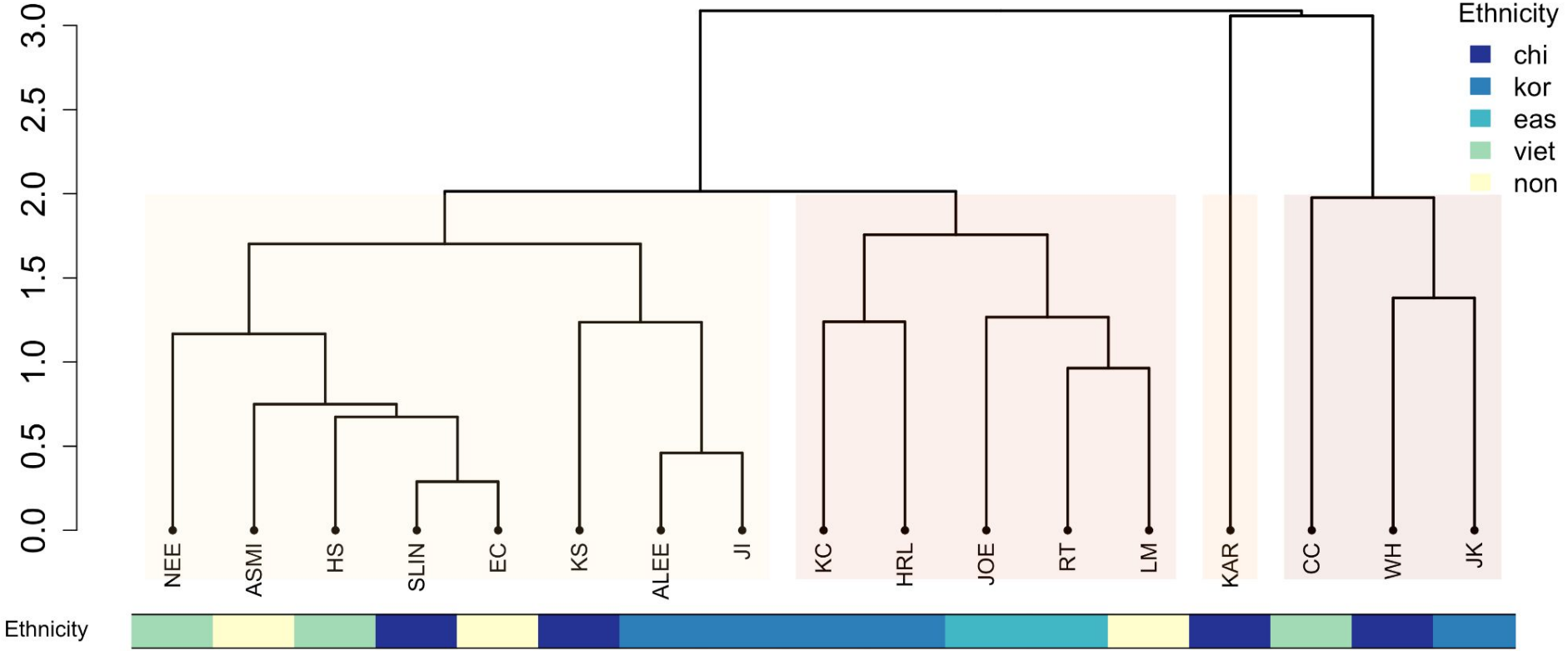
Results: Hierarchical Clustering Analysis (n=17)



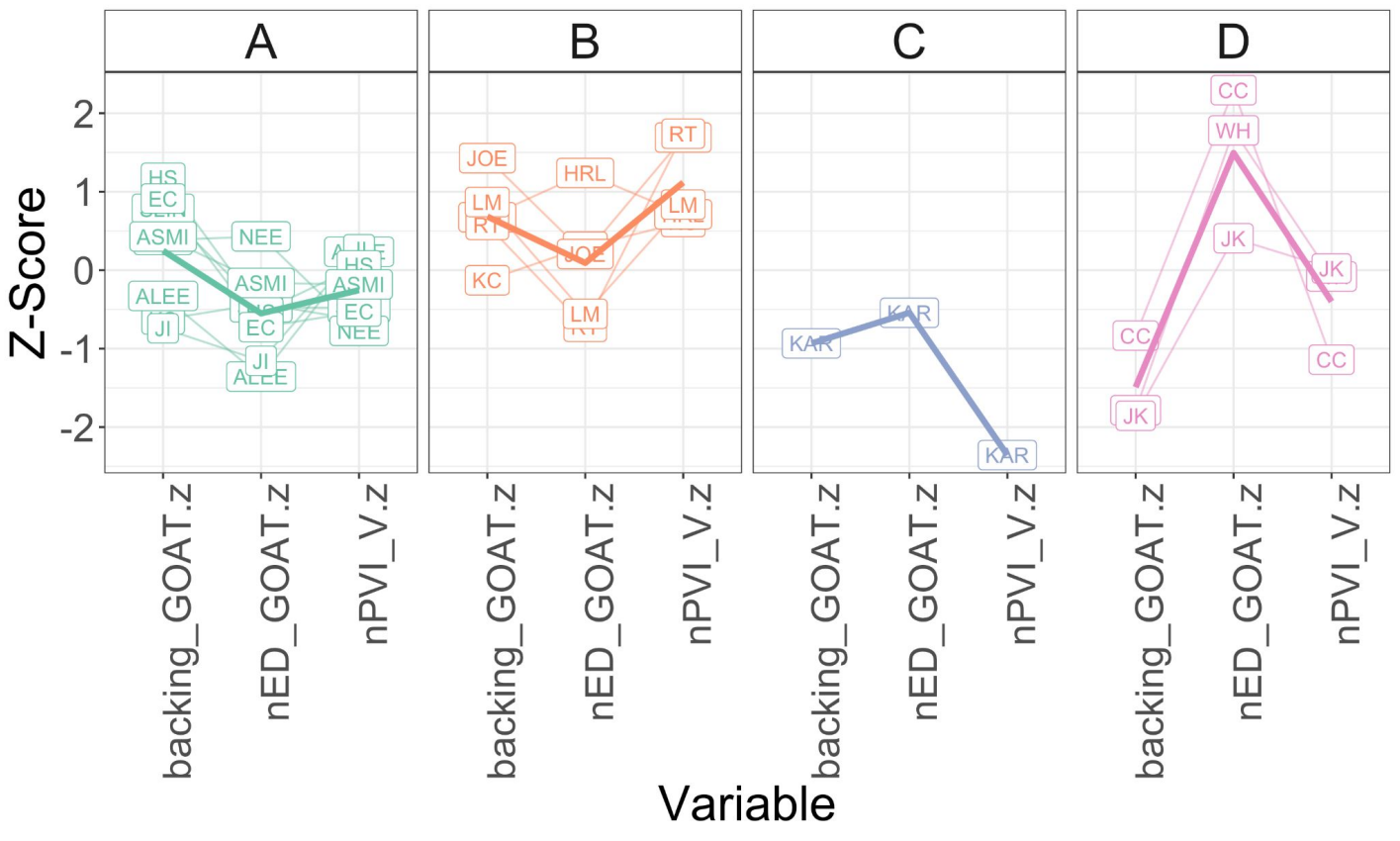
Overall, clusters are not well-aligned with ethnicity (i.e., ethnicity is not a main factor in phonetic patterns)

But, some potential patterns could arise given a larger dataset (many pairs per ethnic group close together; from left: Viet, Non, CHi, Kor)

Results: Hierarchical Clustering Analysis (n=17)

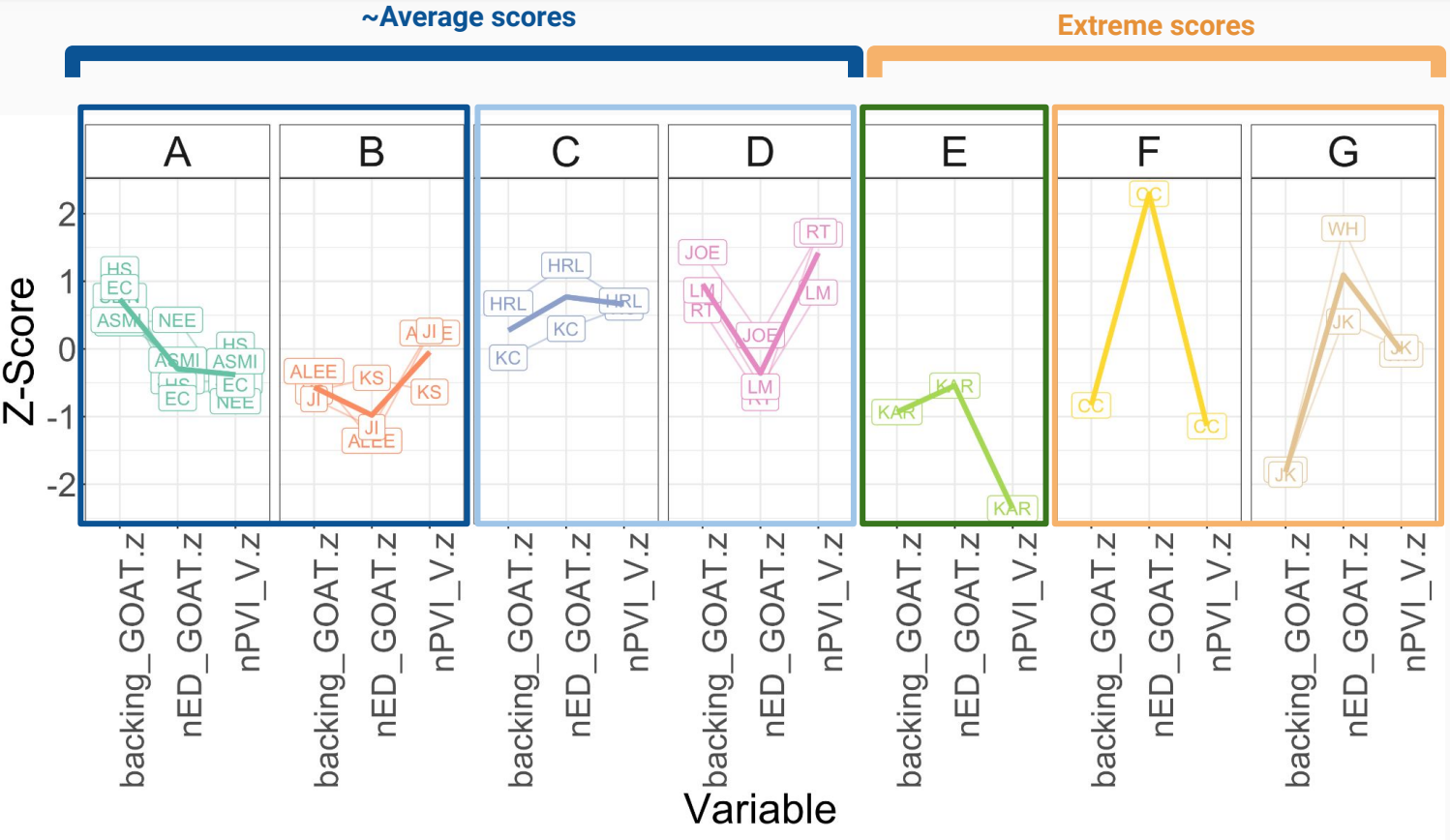


Results: Hierarchical Clustering Analysis (n=17)

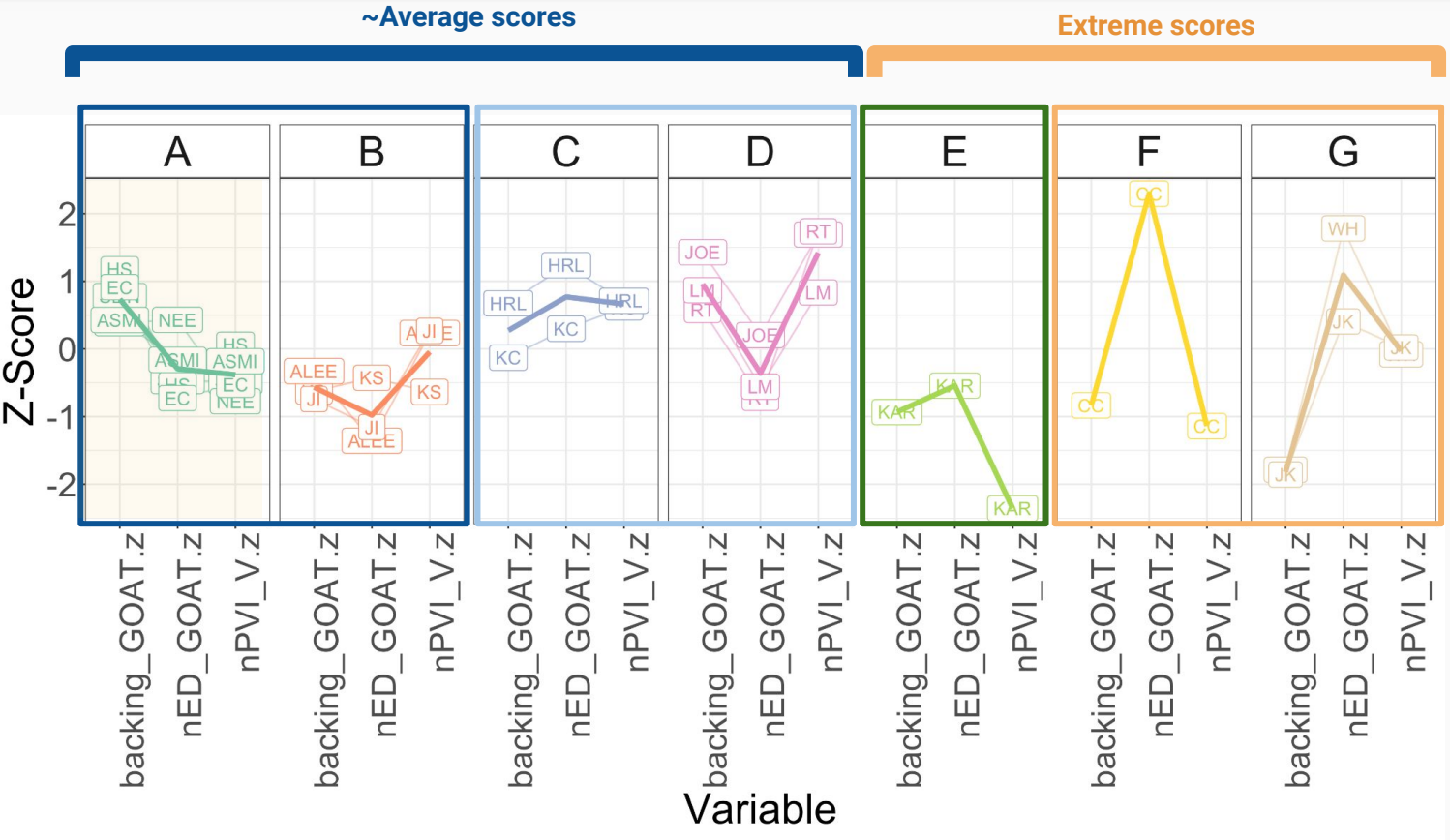


- A = average scores
- B = generally above average, more durational variability
- C = very low scores (more ANA-associated), especially low durational variability
- D = very back /ou/, very diphthongal /ou/, relatively low durational variability

Results: Hierarchical Clustering Analysis (n=17)



Results: Hierarchical Clustering Analysis (n=17)

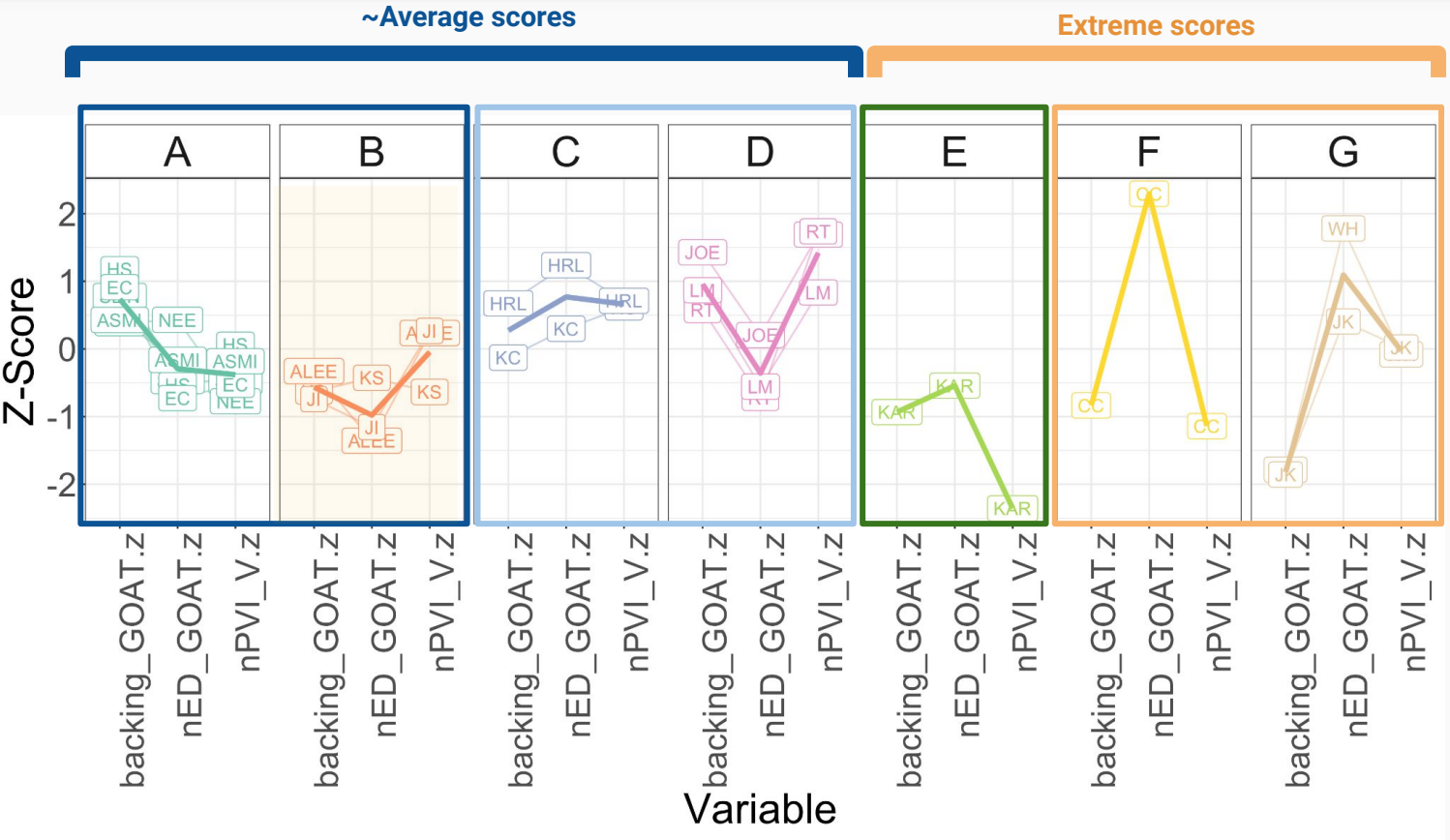


Cluster A

Description: Relatively fronted /ou/ + ~average on the other two features.

Interpretation: Mainstream Californian speaker (includes 2 out of 3 non-ANA speakers)

Results: Hierarchical Clustering Analysis (n=17)

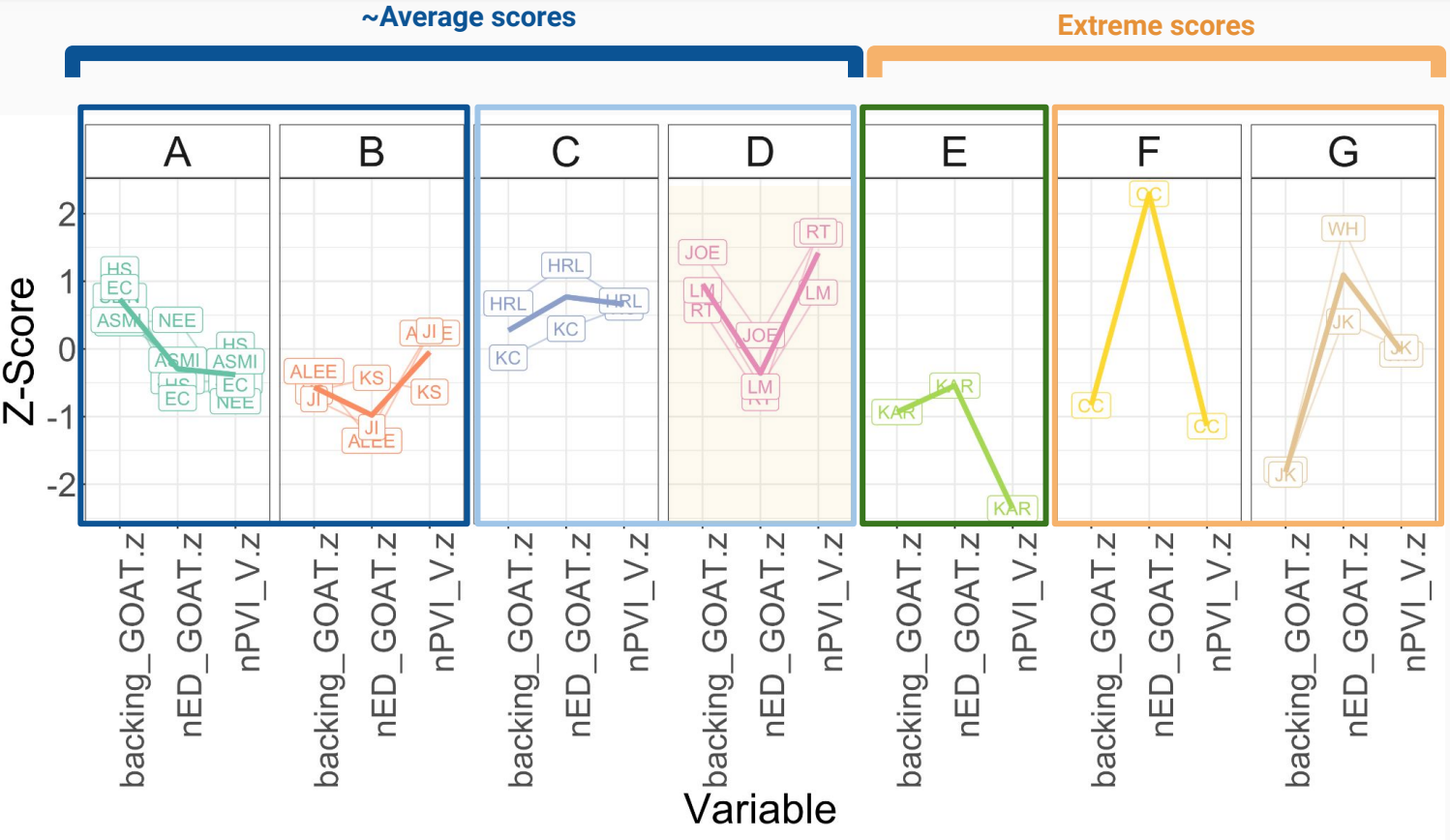


Cluster B

Description: Relatively backed and monophthongal /ou/ + average durational variability.

Interpretation: Korean American predicted pattern (includes 2 out of 5 KorAms)

Results: Hierarchical Clustering Analysis (n=17)

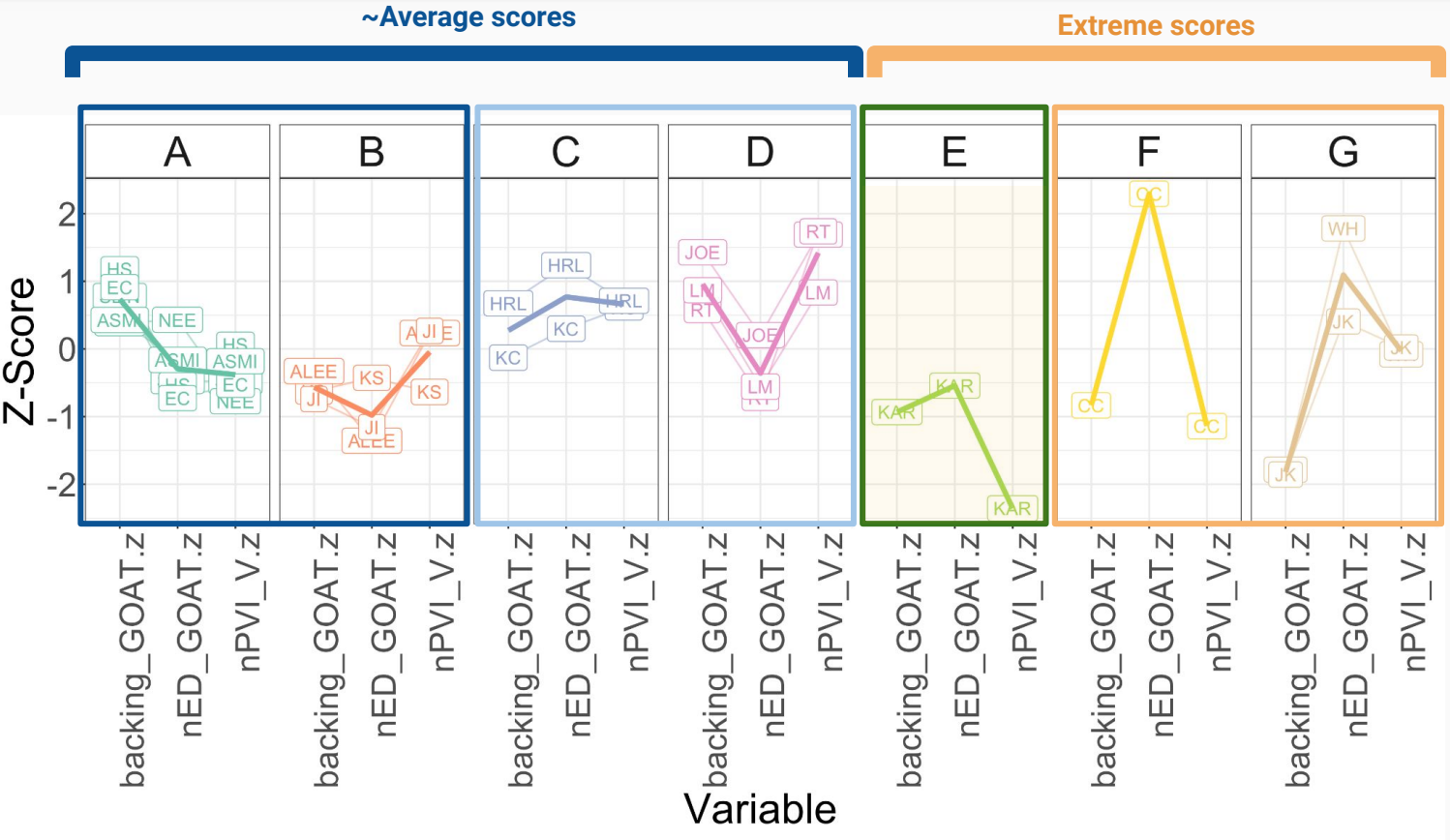


Cluster D

Description:
Relatively fronted /ou/ + high durational variability.

Interpretation:
Mainstream Californian but with particularly variable speech style (possibly 'YouTube speech')

Results: Hierarchical Clustering Analysis (n=17)

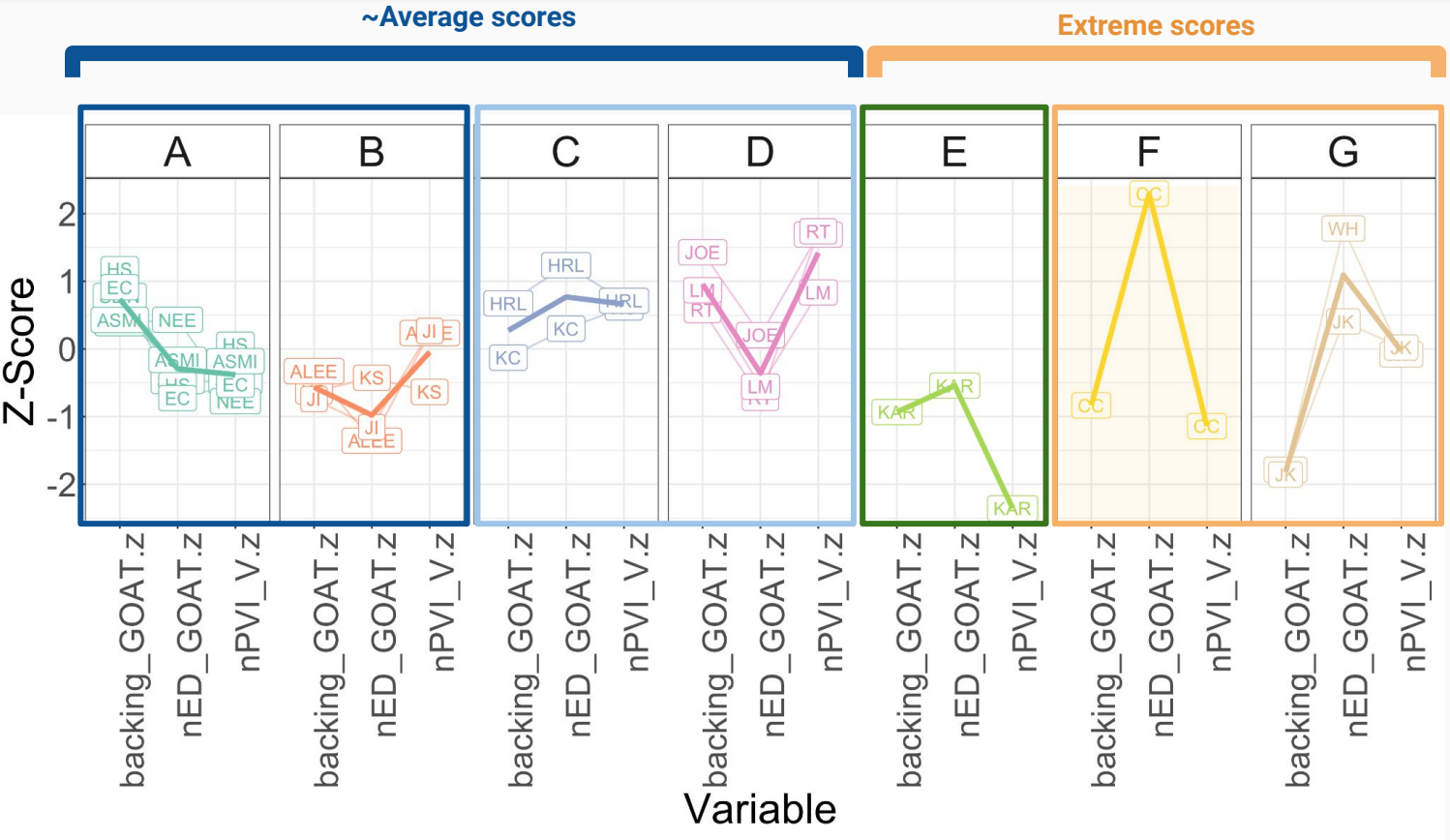


Cluster E

Description:
Relatively back and monophthongal /ou/ + very low durational variability.

Interpretation:
"Asian American" predicted pattern, particularly on the Chinese American associated feature (includes 1 ChiAm)

Results: Hierarchical Clustering Analysis (n=17)

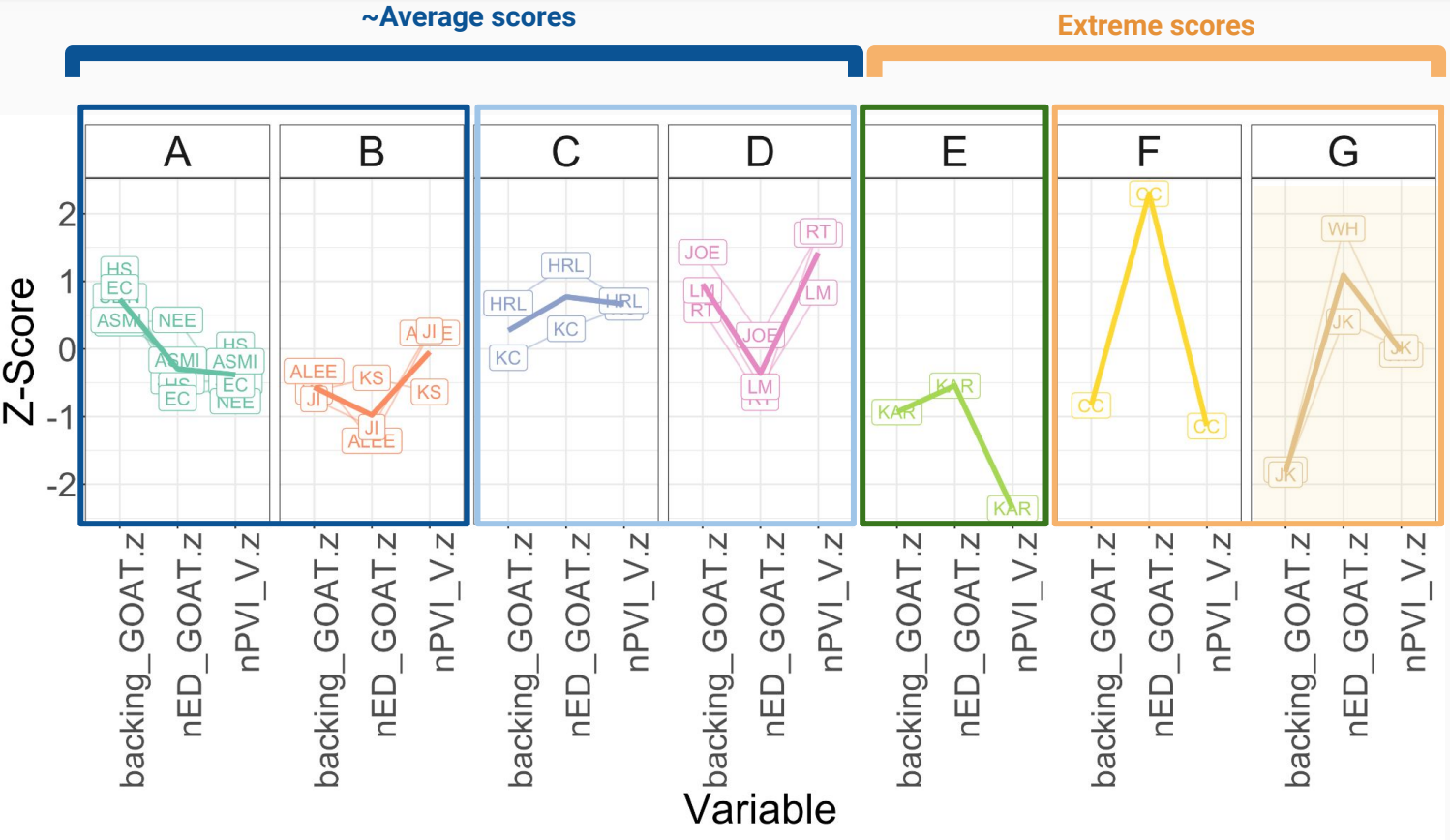


Cluster F

Description:
Relatively back and very *diphthongal* /ou/ + low durational variability.

Interpretation:
"Asian American" features (2 out of 3), potential "Vietnamese American" pattern, (includes 1 VietAm)

Results: Hierarchical Clustering Analysis (n=17)

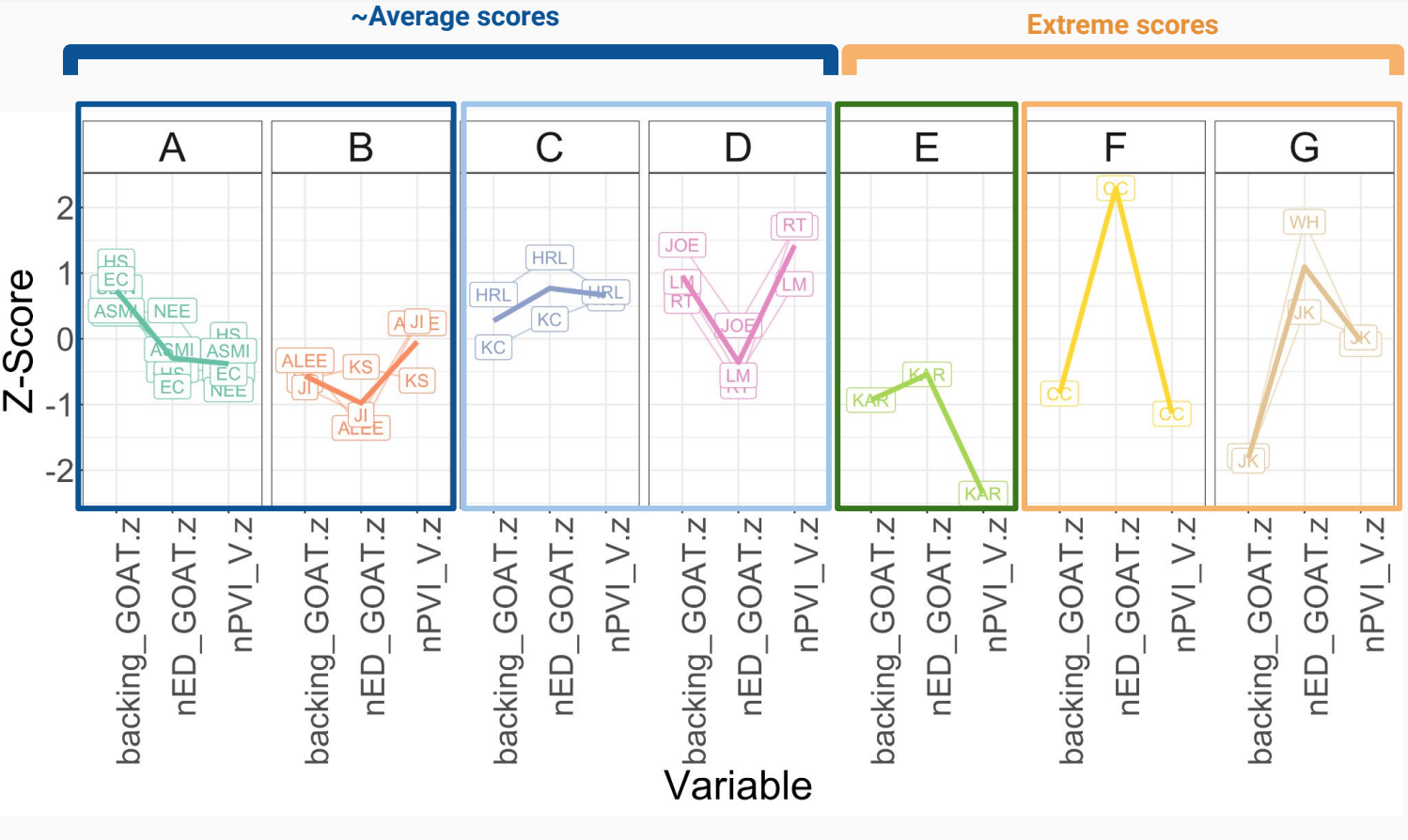


Cluster G

Description: Very back and relatively diphthongal /ou/ + average durational variability..

Interpretation: Strong showing of one “Asian American” feature, possibly indicative of a different ANA pattern (includes 1 ChiAm, 1 KorAm)

Results: Hierarchical Clustering Analysis (n=17)



(1) Slightly below average

- A = Relative /ou/-fronters
  - Else ~average == roughly mai
    Chi-Am pattern
  - 2 non-ANAs, 2 viet, 1 canto-A
- B = Relative /ou/-backers and monophthongi
  - ~2 out of 3 ANA features, + av
    Kor-Am pattern
  - 2 KorAm (the one Chi-Am does
    pattern)

(2) Slightly above average

- C= all just kind of above average
  - hard to assess; mainstream-y
- D = /ou/-fronters with highly variable duration
  - Advanced fronters like A, but h
    high variability — just mainstre
    rhythmic speech style?

(3) Very low + extreme differences

- E = monophthongal, retracted /ou, with **very l**
  - (i.e., all of the ANA features, es
    Chi-specific rhythm)
  - A Canto-Am

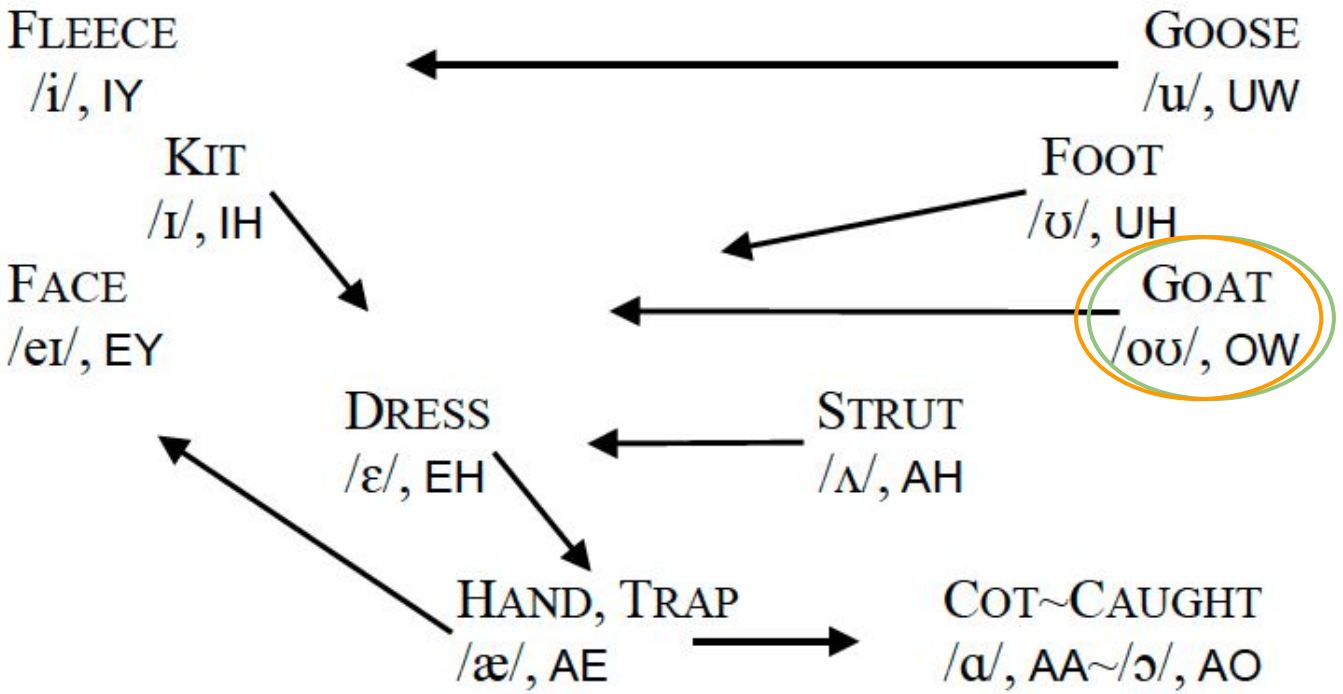
(4) Very extreme differences

- F = Backed /ou/ with low rhythm variability +
  - Very strongly ANA pattern exc
    have strong/any predictions sp
    and Viet-Am, of which substrat
    diphthongs
- D = very back /ou/ with relatively diphthongal
  is actually fully average)
  - Very strong ANA feature of /ou
    coinciding with more contact a
    features
  - Actually looks like 2 different p
    - WH with very di
      maybe contact
    - JK with only ver
      otherwise avera
      like C (2 other K
      extremely low /

Prelim-Prelim Analysis

ANA Features: California Vowel Shift (CVS)

(1) *California Vowel Shift, adapted from Hall-Lew (2009)*



(diagram from Cheng, Faytak & Cychosz, 2016)

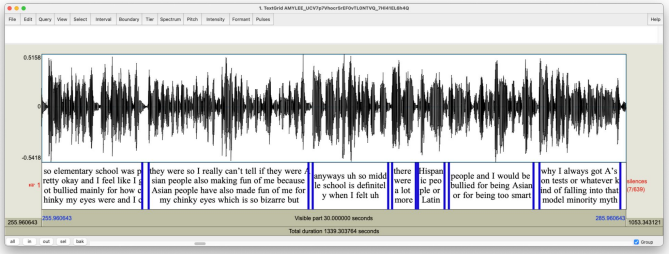
Methods: Speakers

- 35 speakers (25 ANA, 10 non-ANA)
  - Spent childhood in California
  - Present as women
  - East Asian and southeast Asian only
  - Majority were born in U.S. to immigrant parents (i.e., 2nd gen)
- **Current sample of data so far: 10 ANAs**

Ethnic Identification	Corpus *n*	Sample *n*
Korean	7	5
Chinese	5	2
Vietnamese	3	1
Taiwanese	3	1
Malaysian	1	
Japanese	1	
Indonesian	1	
Filipino	2	
Chinese-Korean	1	1
Cambodian	1	
Grand Total	**25**	**10**

Methods: Video Data Processing

1. Identified speakers on YouTube (mainly via “Growing Up Asian American tag”)
    a. Collected self-described ethnicity and regional origin information as available (mainly via user-posted Q&A or tag videos)
    b. Manually screened videos (1-3 per speaker) for audio quality and length
2. Downloaded and pre-processed video captions and audio via Python
3. Semi-manually corrected and time-aligned captions to audio



Methods: Vowel Data Processing

1. Automatic forced alignment using the Montreal Forced Aligner (McAuliffe et al. 2017)
2. Hand-correction of vowels and coding of issues (boundaries, creak, noise/other problems)
3. Extract vowel durations and log-mean normalized F1, F2 and F3 values (Barreda & Neary, 2018) via FastTrack (Barreda, 2021)
    a. Formant values are median values from 9 bins of time (timepoint 5 is the median value between roughly 44-55% into the vowel)
4. Remove outliers/noise
    a. Glottalized/creaky, breathy/voiceless, background noise/sound effects
    b. Shorter than 40ms (mono) or 75 ms (diph)
    c. Calculated Mahalnobis distance … Greater and less than 3 SD from the mean
5. Removed non-target data
    a. Stopwords (e.g. function words)
    b. Vowels with non-primary stress
    c. Vowels preceding liquid (/l/, /r/) and nasal (/n/, /m/, /ŋ/) sonorants

ANA Features: Predictions

Feature	Vowel	Prediction
Backing	/oʊ/ (GOAT)	
	/u/ (GOOSE)	
Monoph-thongization	oʊ/ (GOAT) /eɪ/ (FACE)	
Prosodic rhythm		

Bauman (2016); Hall-Lew (2009); A. Cheng et al. (2016); Jeon (2017); A. Cheng (2020); D'Onofrio & Van Hofswegen (2020); Newman & Wu (2011); Zipp & Staicov (2016)

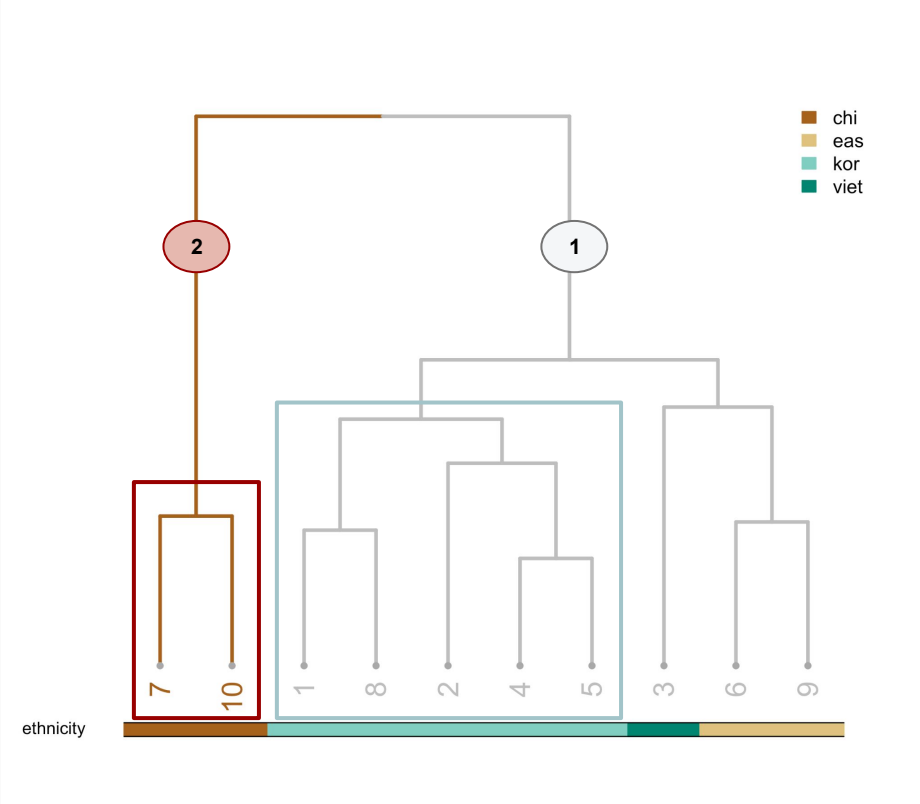
Methods: Variables & Measures

Feature	Vowel	Measure
Backing	a. GOAT /ou/	
Monophthongization	a. GOAT /ou/	
Prosodic Rhythm	All vowels (durational variability)	

Methods: Variables & Measures

Feature	Vowel	Measure
Backing	a. GOAT /ou/ b. GOOSE /u/	**Relative backing score**: difference in token F2 from mean FLEECE F2 (higher = more back)
Monophthongization	a. GOAT /ou/ b. FACE /ei/	**Norm. Euclidean distance (nED)**: ED of F1+F2 values at 25% and 75%, divided by token duration (lower = more mono)
Prosodic Rhythm	All vowels (durational variability)	**Norm. pairwise variability index (nPVI)**: Average (median) duration difference b/t each pair of vowels, divided by mean pair duration (lower = more "syllable-timed")

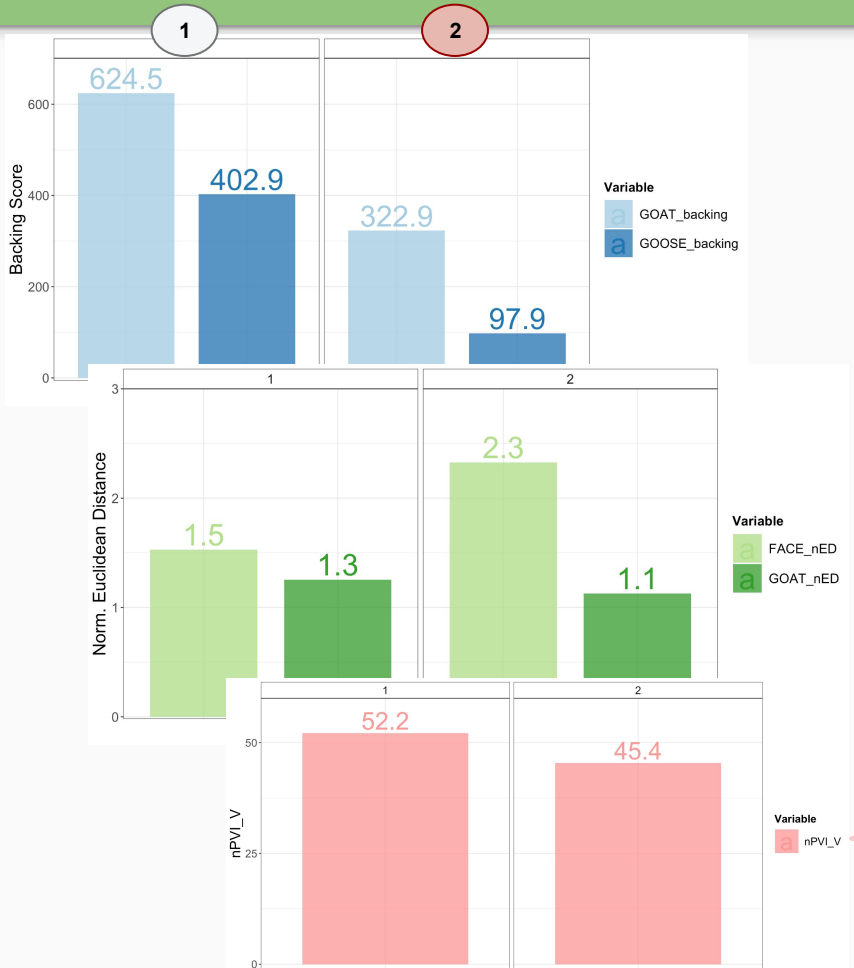
Clustering Results: Hand-corrected measures (n=10)



- Ran hierarchical agglomerative clustering on Euclidean distances via Ward's (minimum variance) method
  - i.e., each speaker starts as own cluster → grouped with most similar, and so on

- Optimal solution is **2 clusters**
- These emergent groups appear to line up with ethnicity in this sample
  - Cluster 2 = the two **Chinese Americans**
  - Cluster 1 = everyone else, where **Korean Americans** cluster together

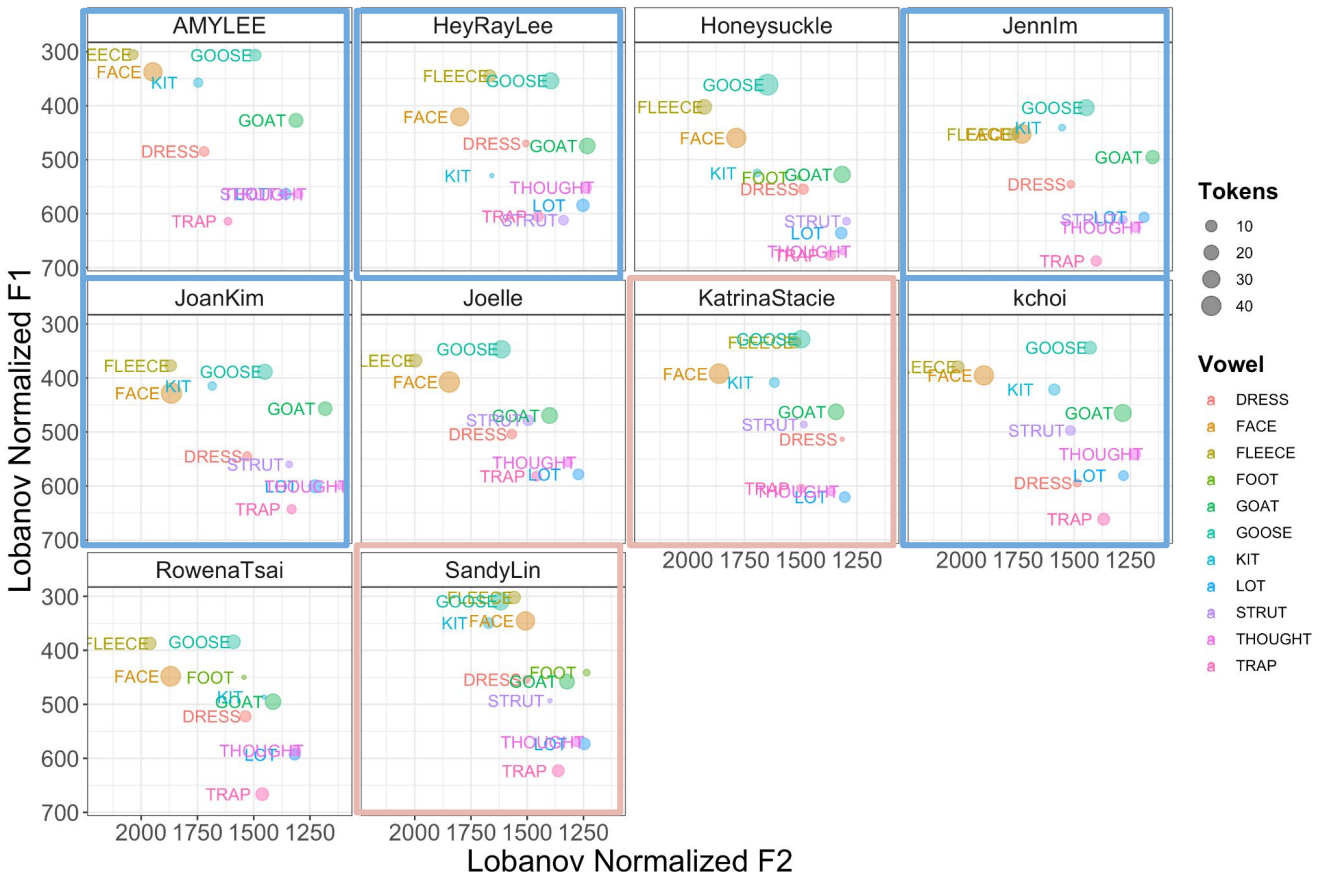
Clustering Results: Hand-corrected measures (n=10)



Feature	1 (mostly Kor-Am)	2 (Chi-Am)
GOAT-backing	**Very retracted**	**More fronted (?)**
GOOSE-backing	More retracted *	**Very fronted (?)**

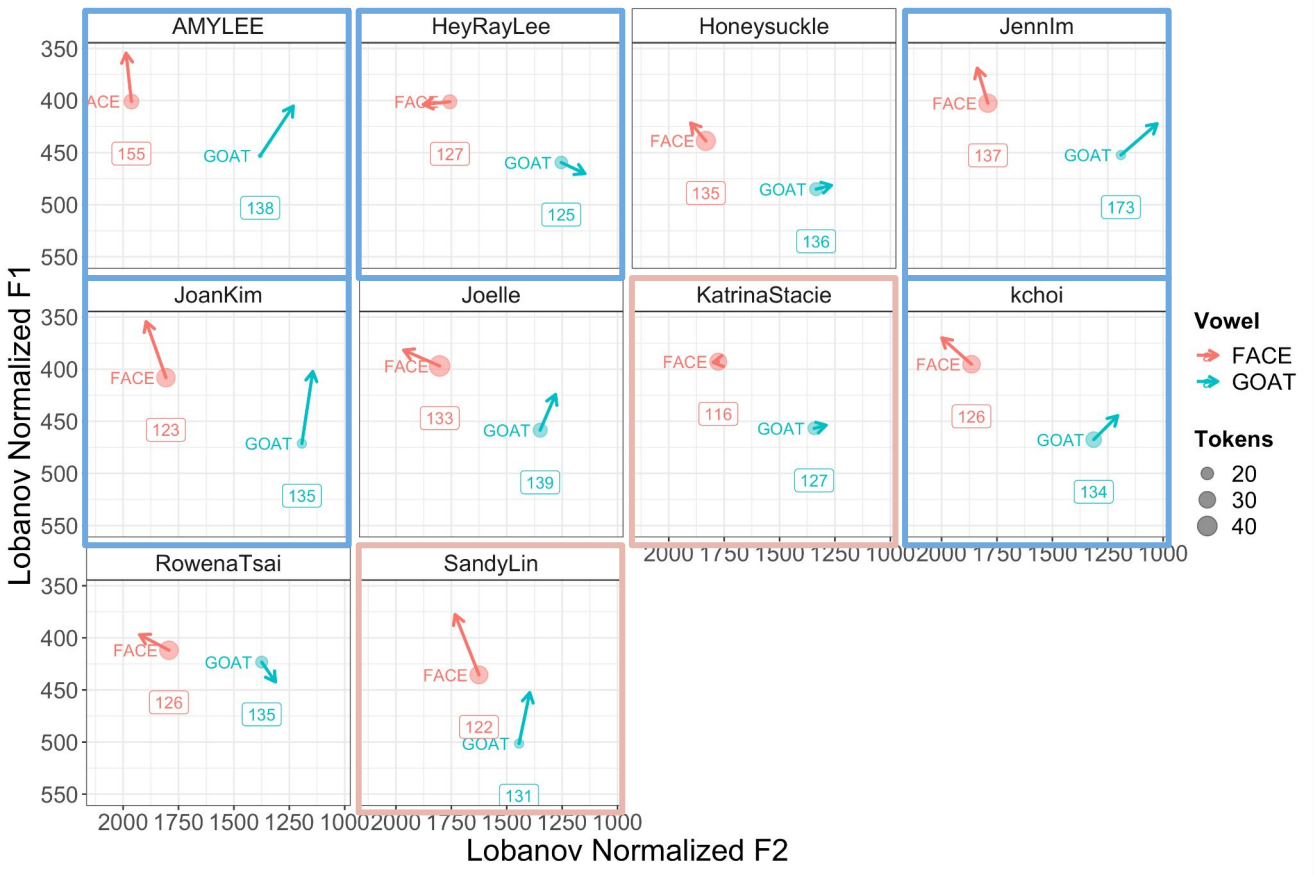
~30-43 for Hispanic speakers (Thomas & Carter, 2006)
~33-53 for ANAs (with an average of 43 in Bauman, 2016) or
~35-45 (for the Chinese men in Newman & Wu, 2011)
~50-55 for White and Black speakers (Thomas & Carter, 2006)

Individual Data: Hand-corrected measures (n=10)



Mean F1/F2 per vowel nucleus midpoint

Individual Data: Hand-corrected measures (n=10)



Mean F1/F2 per diphthong onset (25%) and offset (75%)

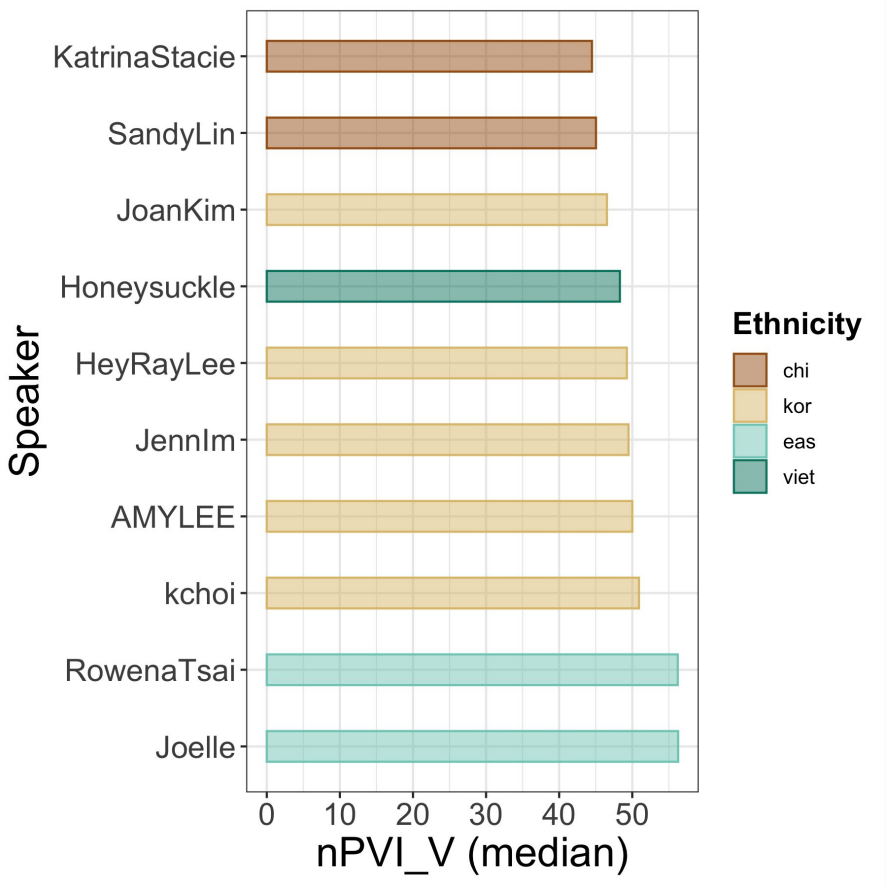
- Mean durations labelled but not controlled for

ANA Features: Predictions

Feature	Vowel	Prediction
Backing	/oʊ/ (GOAT)	**Fronted** (higher F2) — White Americans; Chinese Americans ✓ — Asian Americans; Korean Americans ✓ — **Retracted** (lower F2)
	/u/ (GOOSE)	**Fronted** (higher F2) — White Americans; Korean Americans ?; (?)Chinese Americans ✓ — **Retracted** (lower F2)
Monoph-thongization	oʊ/ (GOAT) /eɪ/ (FACE)	**Diphthongal** (more formant movement) — White Americans — Asian Americans ? ✗ — **Monophthongal** (less formant movement)
Prosodic rhythm		**"Stress-timed"** (more variable vowel duration)s — White Americans; (?)Korean Americans ✓ — Chinese Americans ✓; (?)Asian Americans ✗ — **"Syllable-timed"** (less variable vowel durations)

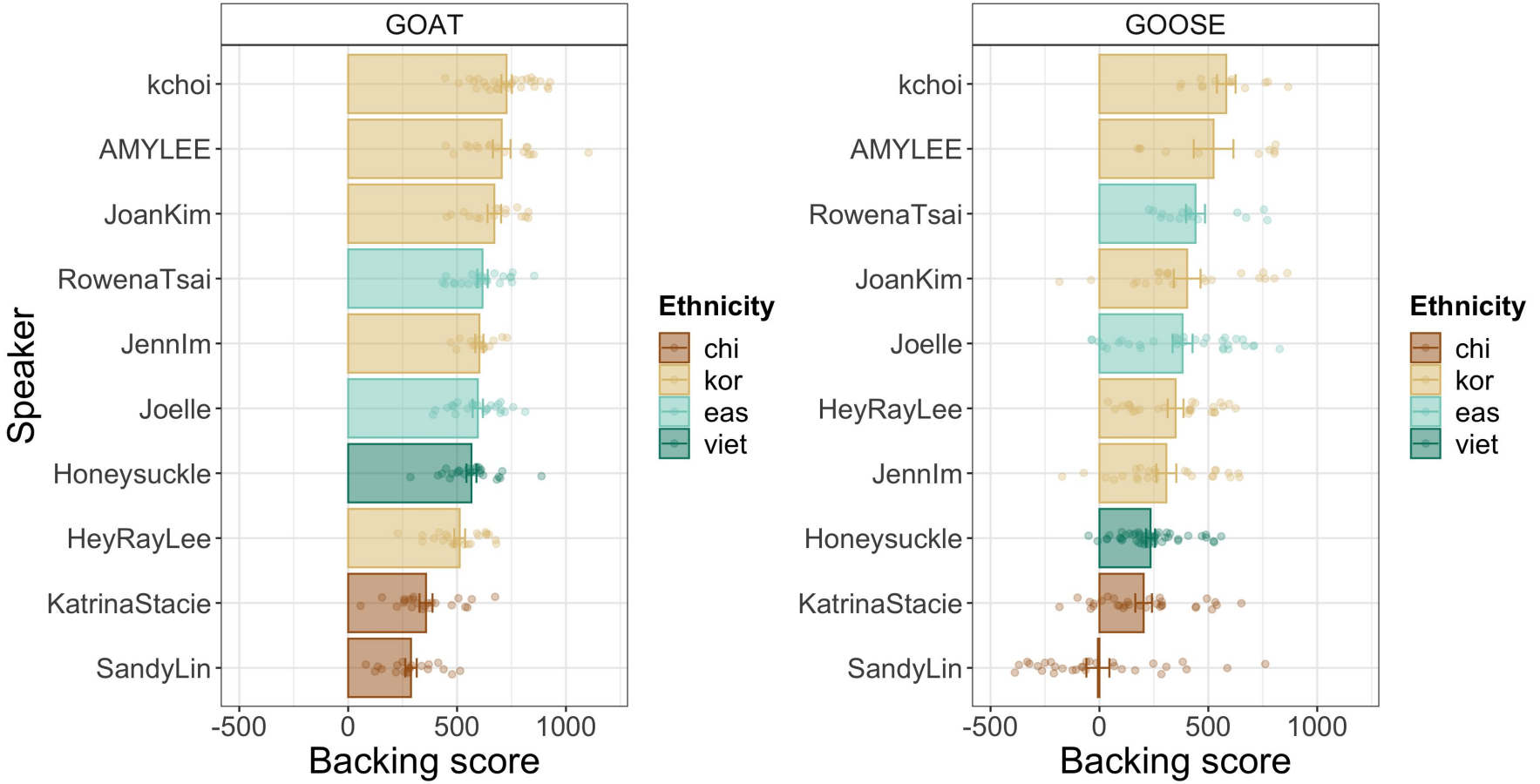
Bauman (2016); Hall-Lew (2009); A. Cheng et al. (2016); Jeon (2017); A. Cheng (2020); D'Onofrio & Van Hofswegen (2020); Newman & Wu (2011); Zipp & Staicov (2016)

Individual Data: Prosodic Rhythm

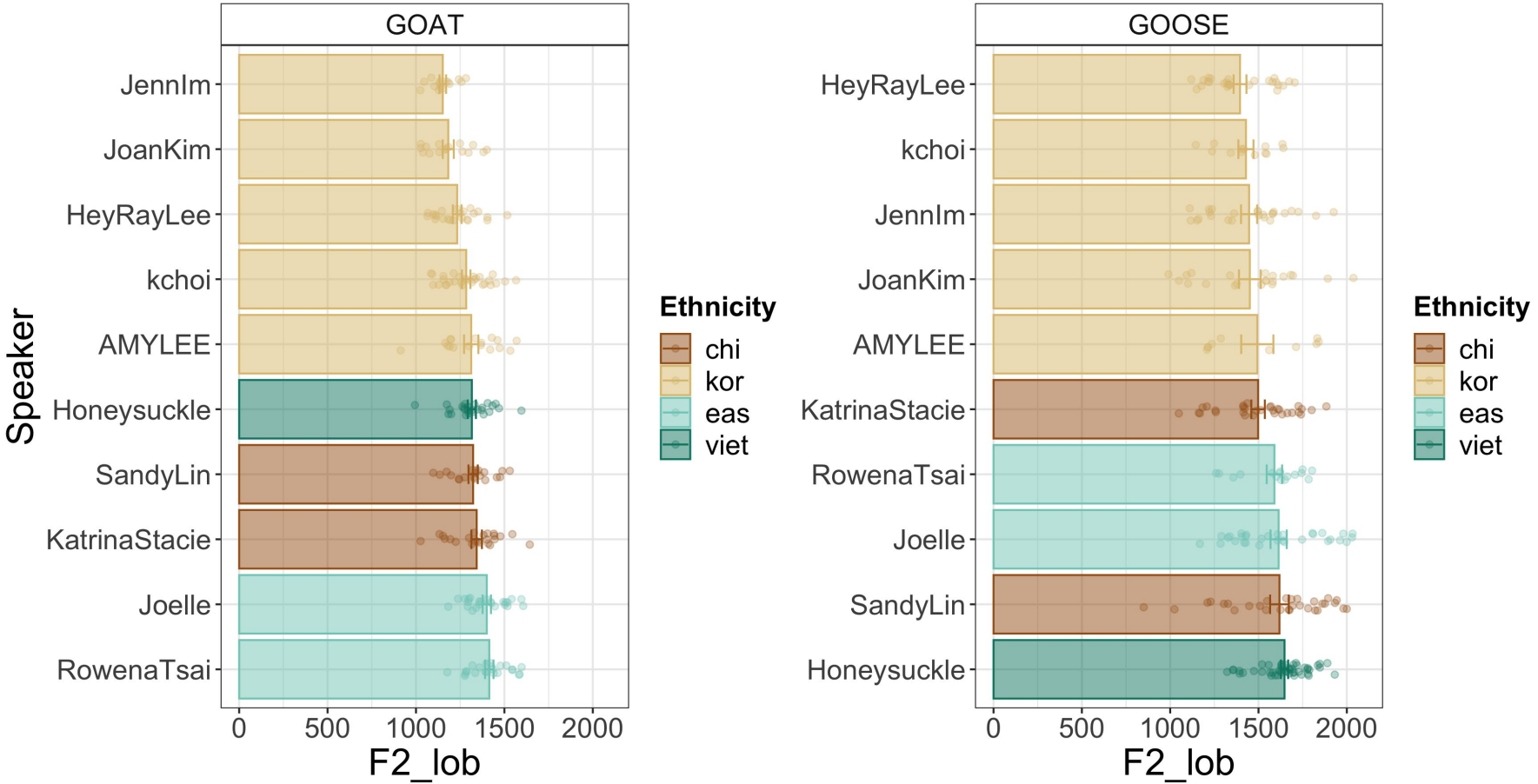


- Numerical patterning by ethnicity
  - Generally lines up with the clustering results that consider all measures together

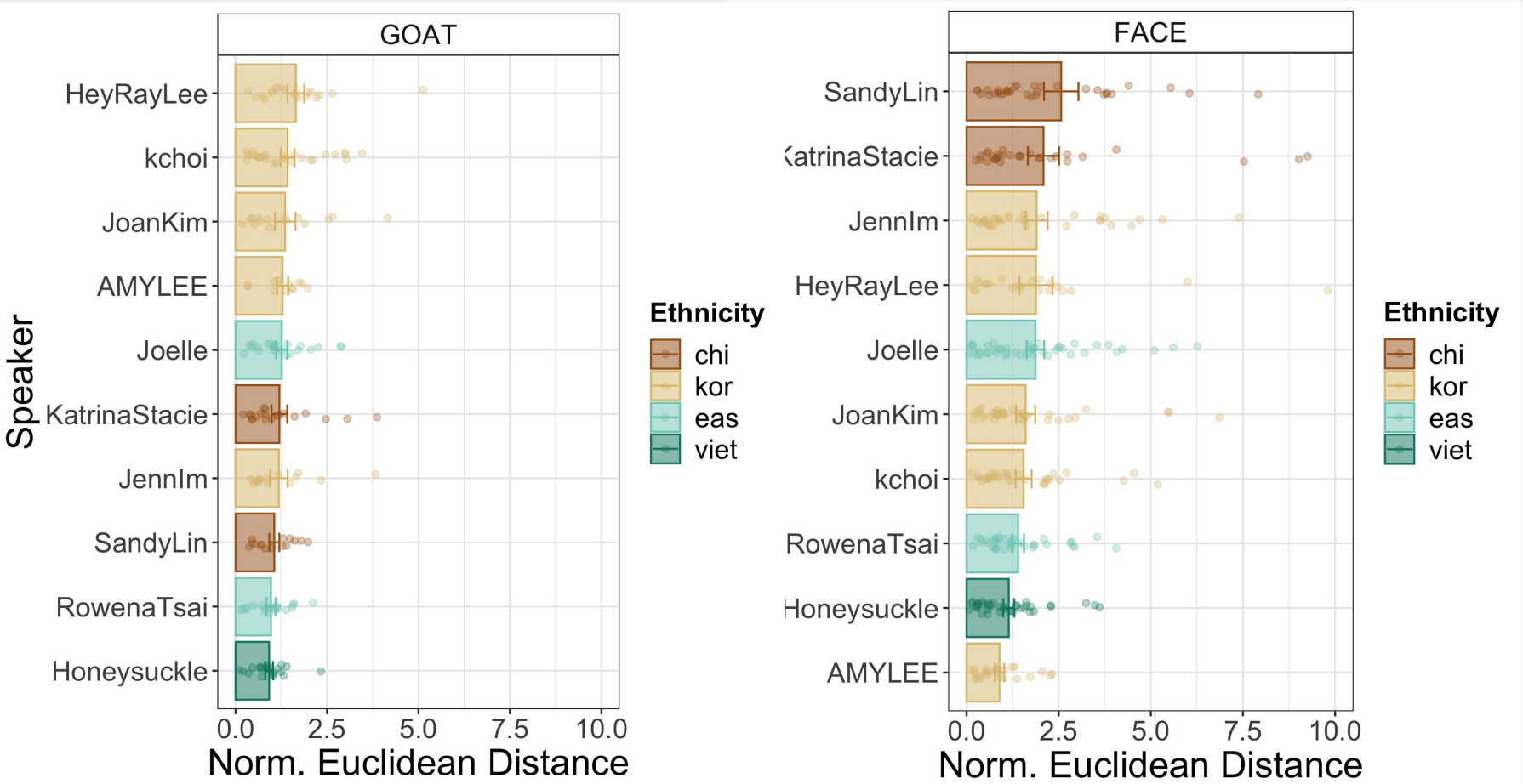
Individual Data: Back vowel fronting (score)



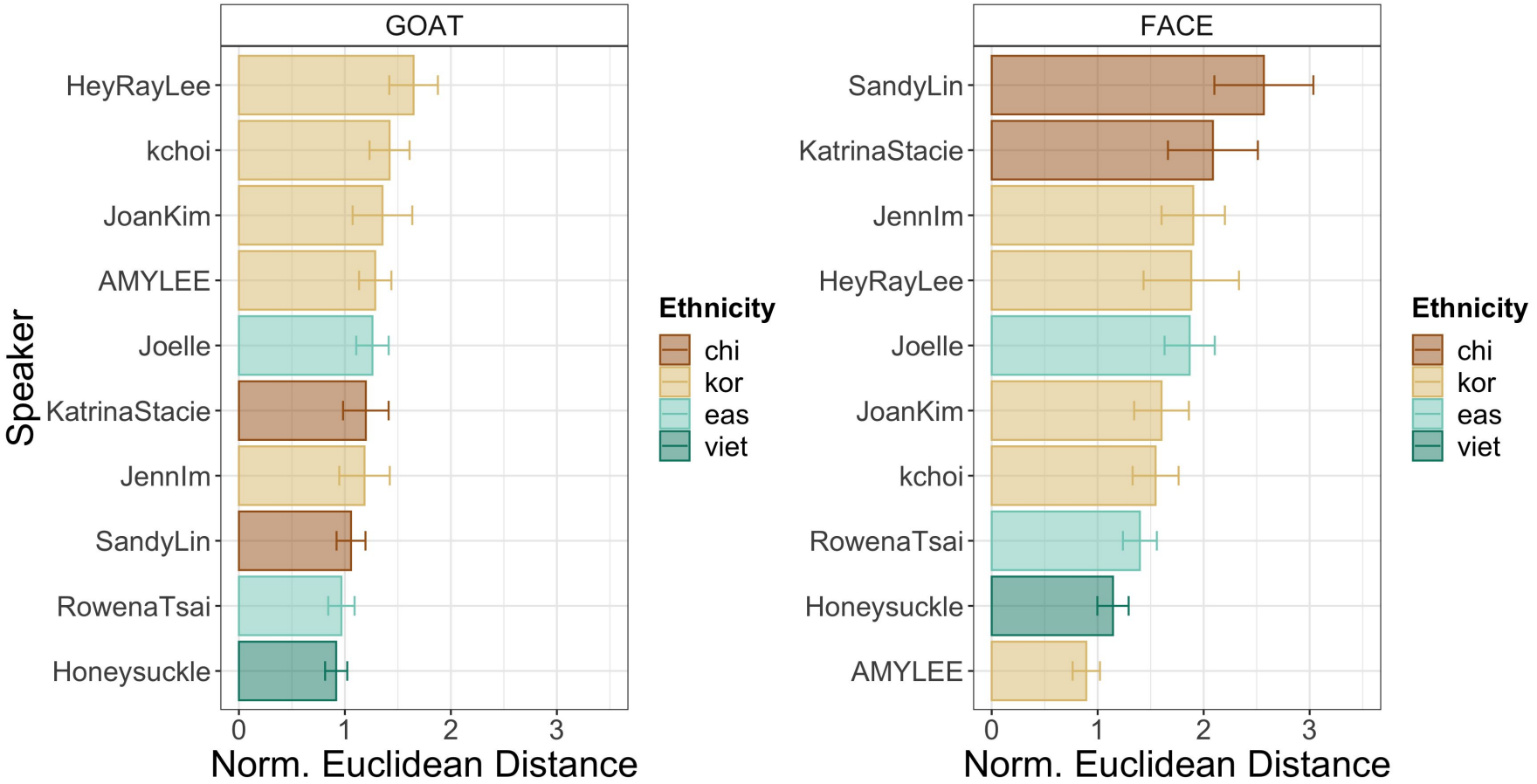
Individual Data: Back vowel fronting (F2)



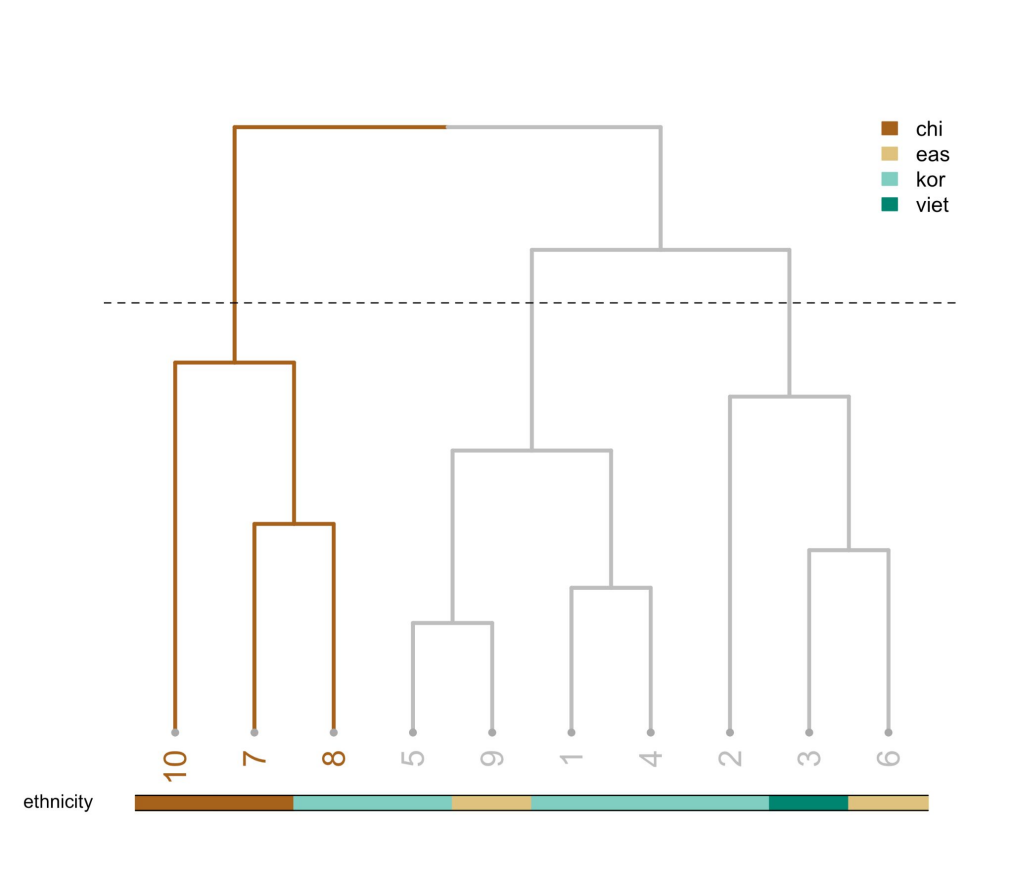
Individual Data: Monophthongization

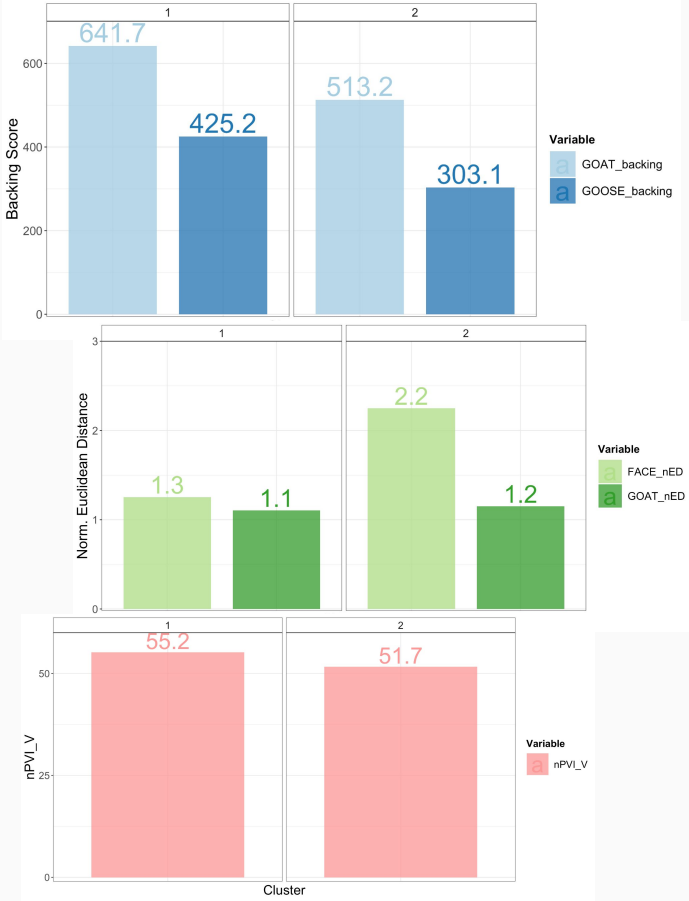


Individual Data: Monophthongization (close up)



Automatic measures in comparison



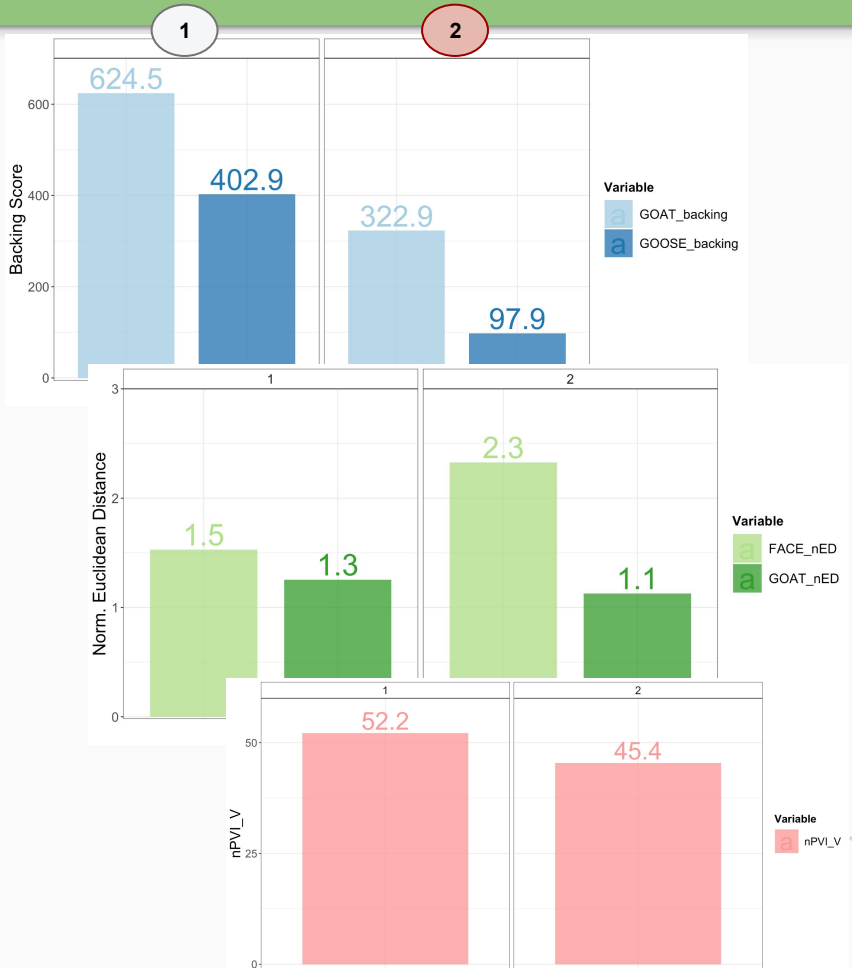


ANA Features: Predictions

Feature	Vowel	Prediction
Backing	/oʊ/ (GOAT)	**Fronted** (higher F2) ← White Americans; Chinese Americans; Asian Americans; Korean Americans → **Retracted** (lower F2)
	/u/ (GOOSE)	**Fronted** (higher F2) ← White Americans; Korean Americans; (?)Chinese Americans → **Retracted** (lower F2)
Monoph-thongization	oʊ/ (GOAT) /eɪ/ (FACE)	**Diphthongal** (more formant movement) ← White Americans; Asian Americans → **Monophthongal** (less formant movement)
Prosodic rhythm		**"Stress-timed"** (more variable vowel duration)s ← White Americans; (?)Korean Americans; Chinese Americans; (?)Asian Americans → **"Syllable-timed"** (less variable vowel durations)

Bauman (2016); Hall-Lew (2009); A. Cheng et al. (2016); Jeon (2017); A. Cheng (2020); D'Onofrio & Van Hofswegen (2020); Newman & Wu (2011); Zipp & Staicov (2016)

Clustering Results: Hand-corrected measures (n=10)



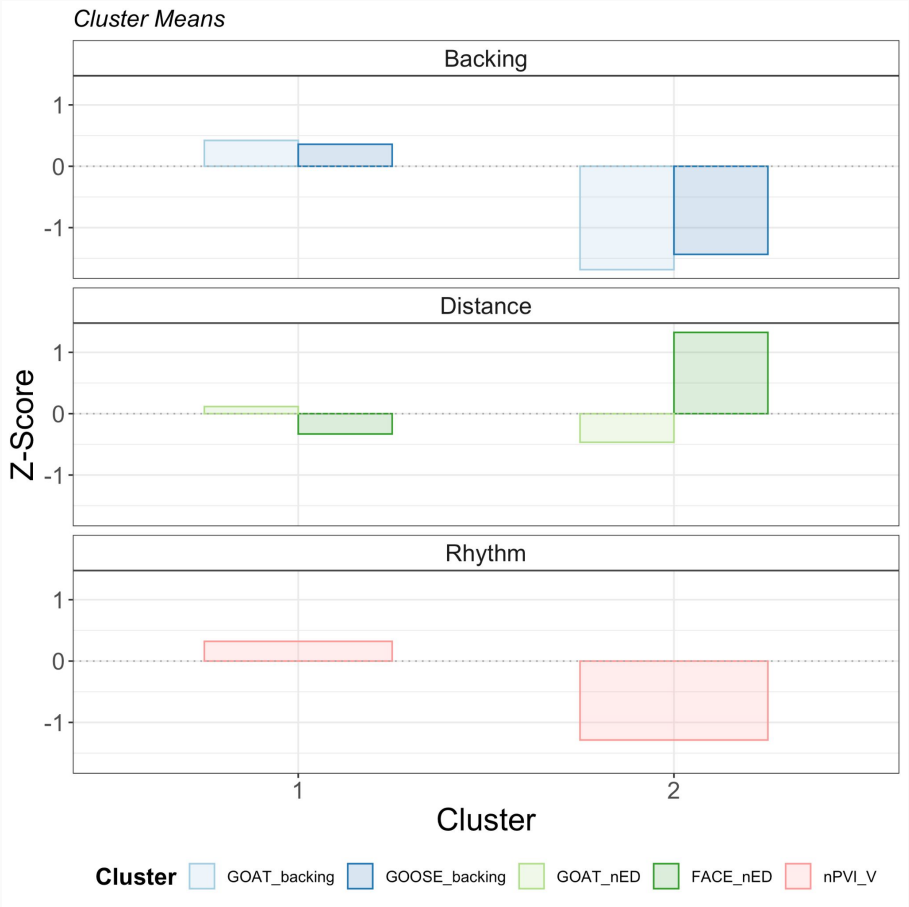
Feature	1 (mostly Kor-Am)	2 (Chi-Am)
GOAT-backing	**Very retracted**	**More fronted (?)**
GOOSE-backing	More retracted *	**Very fronted (?)**
GOAT-monoph	*Similarly diphthongal*	*Similarly diphthongal*
FACE-monoph	*Less diphthongal*	Very diphthongal (*?)
Prosodic Rhythm	More “syllable-timed” (more variable duration)	**More “stress-timed” (less variable duration)**

~30-43 for Hispanic speakers (Thomas & Carter, 2006)
~33-53 for ANAs (with an average of 43 in Bauman, 2016) or
~35-45 (for the Chinese men in Newman & Wu, 2011)
~50-55 for White and Black speakers (Thomas & Carter, 2006)

Methods: Variables & Measures

Feature	Vowel	Measure
Backing	a. GOAT /ou/ b. GOOSE /u/	**Relative backing score**: difference in token F2 from mean FLEECE F2 (higher = more back)
Monophthongization	a. GOAT /ou/ b. FACE /ei/	**Norm. Euclidean distance (nED)**: ED of F1+F2 values at 25% and 75%, divided by token duration (lower = more mono)
Prosodic Rhythm	All vowels (durational variability)	**Norm. pairwise variability index (nPVI)**: Average (median) duration difference b/t each pair of vowels, divided by mean pair duration (lower = more "syllable-timed")

Results: Hand-corrected measures (n=10)



ANA Speech in **Production**

- Most production work has been ethnographic studies on specific communities (e.g.):
  - **Chinese-Americans** in San Francisco (Hall-Lew, 2009), New York City (Wong, 2010), Troy, MI (Zheng, 2018)
  - **Korean-Americans** in New Jersey (Lee, 2016), Houston (Jeon, 2017), California (Cheng, 2020)
  - **Hmong-Americans** in Minnesota (Ito, 2010; Kaiser, 2011)
  - **Vietnamese-American** student association in Minnesota (Nguyen, 2019)
  - **Japanese-Americans** in California (Mendoza-Denton & Iwai, 1993; D'Onofrio & van Hofwegen, 2020)

Features discussed in the ANA literature

Vowels	Consonants	Suprasegmentals
GOAT-fronting/monophthong (6)	Coda /l/-vocalization (3)	**Syllable-timed rhythm (4)**
COT-CAUGHT merger (6)	/ð/ fortition (2)	High terminal rise/uptalk (2)
Vowel space/shifts (4)	Voiceless stop VOT (1)	Pauses/filler words (2)
TRAP-fronting/raising/tensing (4)	Post-vocalic /r/ deletion (2)	Breathiness (1)
BOUGHT-raising (4)	[t]/[d] coda cluster deletion (1)	Vocal fry (1)
BOOT-fronting (3)	Consonant cluster reduction (1)	Higher (average) pitch (1)
FACE-backing/monophthong (2)	Onset /r/ quality (1)	*Pitch range?*
TOO-fronting (1)		*Nasality?*

ANA Features: CVS and Fronting/Backing

Study	
Bauman (2016)	ANA women (sorority members) of various ethnic backgrounds from mid-Atlantic region **backed GOAT** more than others
Hall-Lew (2009)	Chinese-Americans in SF **fronted GOAT and GOOSE** like White Americans
A. Cheng et al. (2016)	Korean-Americans from California with **backer GOAT** and **fronted GOOSE** compared to White Americans Chinese-Americans with **intermediate fronting of GOAT and GOOSE**
Jeon (2017)	Korean-Americans in Houston **back GOAT** more, esp. first generation and those with higher ethnic orientation
A. Cheng (2020)	Korean-Americans in California **back GOAT** more, esp. those oriented towards heritage and when talking about Korean topic

ANA Features: Monophthongization

Study	
Bauman (2016)	ANA women (sorority members) of various ethnic backgrounds from mid-Atlantic region produced **more monophthongal GOAT**
D'Onofrio & Van Hofswegen (2020)	Japanese-Americans in California were **more monophthongal for GOAT and FACE**

ANA Features: Monophthongization

Study	
Bauman (2016)	ANA women (sorority members) of various ethnic backgrounds from mid-Atlantic region were **relatively syllable-timed**
Newman & Wu (2011)	Two Chinese-American men in New York with **more syllable-timed speech** than White, Black and Hispanic men Korean-Americans and Chinese-American women **no different** from others
Zipp & Staicov (2016)	Two Chinese-American women from San Francisco with **relatively syllable timed speech**, esp. when speaking with an in-group member Two Chinese-American men were **no different** from stress-timed speakers

Data: “Growing Up Asian-American” Tag

Tag Questions:

1. Which ethnicity are you?
2. Which generation are you?
3. What is the first experience where you felt that demarcation of being a minority/different?
4. Were you always proud of your heritage or was there a time you rejected it?
5. What are some stereotypes that you struggle with?
6. Can you speak your language?
7. How has being Asian American affected your relationship with your parents?
8. How do you feel about your heritage now? Do you identify with it?
9. What is your favorite thing about being Asian American/your heritage?

Data: Speaker Info/Demographics

- 45 speakers/videos
  - Out of 54 GUA tag videos, removed 1 non-English, 5 multi-speaker, 3 partials
- Limitations/Considerations:
  - Limited variety of regional locations
  - East Asian and southeast Asian only
  - Majority born in U.S. to immigrant parents (i.e., 2nd gen.), but some 1.5 gen, 3/5 gens, adopted
  - Large majority present as women
  - Genre most likely to be lifestyle and beauty vloggers
  - Likely only includes those who are more oriented towards ethnic identity

Regional location (childhood)	
California	21
unknown	*5*
New York	4
Virginia	2
Oregan	2
Ontario?	2
New Jersey	2
Texas	1
Ohio	1
Minnesota	1
Massachusetts	1
Illinois	1
Florida	1
Connecticut	1

Ethnic identification	
Korean	9
Filipino	9
Chinese	8
Vietnamese	4
Taiwanese	3
Malaysian Chinese	1
Malaysian	1
Lao	1
Korean-White	1
Japanese-Korean	1
Japanese	1
Indonesian-Chinese	1
Indonesian	1
Chinese-Vietnamese	1
Chinese-Korean	1
Cambodian-Chinese	1
Cambodian	1

Clustering Analysis

- Based on silhouette diagnostic method, selected k=2 (clusters)
  - With only 6 individuals, not very reliable!
- Hierarchical clustering on **5 key variables** of interest**:**
  i. GOAT-fronting (norm. Backing Score)
  ii. GOOSE-fronting (norm. Backing Score)
  iii. GOAT-monophthongization (norm. Euclidean Distance)
  iv. FACE-monophthongization (norm. Euclidean Distance)
  v. Syllable-timed rhythm (nPVI)

Analysis: Ideas

1. **Are there clusters of ANA-identifying speakers with shared/similar phonetic features?**

   What clusters occur in the data? Can these be characterized by ethnic or regional identification, or the interaction?

2. **What phonetic features are shared across ANA-identifying speakers?**

   For a specific feature (e.g., syllable timed rhythm), do we see similarities across ethnic or pan-ethnic groups?

   How do ANA speakers compare to speakers of other ethnic backgrounds from the same regions?

3. **(Does ethnic orientation/rootedness correlate with use of ANA ethnolinguistic features?)**

Data: Speaker Info

- 66 total speakers (46 ANA, 20 non-ANA)
  - 35 Californian (25 ANA, 10 non-ANA)

Regional location (childhood)	
California	25
NA	6
Texas	3
Washington	2
Oregan	2
Virginia	1
Toronto, Canada	1
Pennsylvannia	1
New York	1
New Jersey	1
Illinois	1
Connecticut	1
Alberta, Canada	1

Ethnic identification	
Chinese	11
Korean	9
Vietnamese	8
Filipino	6
Taiwanese	3
Japanese	2
Vietnamese-Chinese	1
Malaysian	1
Lao	1
Japanese-Korean	1
Indonesian	1
Chinese-Korean	1
Cambodian	1

Questions for you

- What other literature may be relevant to background, framing and interpretation?
- Are there considerations we should take into account?
- Feedback/ideas for analysis: What kinds of analyses make sense?
  - Comparison groups? (e.g., tags comparable to GUA?)
  - How to code/assess ethnic orientation?
  - Thoughts on local/regional category? (e.g., California vs. other? North vs South California?)
- Suggestions/advice/help for data processing and phonetic analyses
  - Efficient ways to detect problems and clean data? (e.g., background music, multiple speakers…)
  - Other tools that might be relevant? (e.g., Praat scripts, other forced aligners…)
  - Analysing prosodic/suprasegmental information? (e.g., uptalk, voice quality)
- Future directions/ideas
  - Download videos to include with corpus? Would that be relevant to some research?
  - Extensions to morphosyntactic/other features?